DOCUMENT RESUME

ED 475 794 EC 309 540

AUTHOR	Wagner, Mary; Marder, Camille; Blackorby, Jose
TITLE	The Children We Serve: The Demographic Characteristics of Elementary and Middle School Students with Disabilities and Their Households. SEELS (Special Education Elementary Longitudinal Study).
INSTITUTION	SRI International, Menlo Park, CA.
SPONS AGENCY	Special Education Programs (ED/OSERS), Washington, DC.
PUB DATE	2002-09-00
NOTE	65p.; Prepared with Denise Cardoso.
CONTRACT	ED-00-CO-0017
AVAILABLE FROM	For full text: http://www.seels.net.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	EDRS Price MF01/PC03 Plus Postage.
DESCRIPTORS	*Disabilities; Elementary Education; *Family Characteristics; Interviews; Longitudinal Studies; Middle Schools; National Surveys; Parent Background; *School Demography; *Socioeconomic Status; *Special Education; *Student Characteristics

ABSTRACT

The Special Education Elementary Longitudinal Study (SEELS) is a national study of the characteristics, experiences and achievements of students with disabilities in elementary and middle school. This report presents results of data (mainly surveys of and interviews with parents) on more than 12,000 students with disabilities, ages 6-12, selected to represent all 12 federal special education categories. The study will collect information on students three times over 4 years. This report focuses on demographic characteristics of students and their households. After an introductory chapter, chapter 2 (titled "Demographic Characteristics of Elementary and Middle School Students Receiving Special Education" by Camille Marder and Mary Wagner) describes the disability classifications and demographic characteristics of students with disabilities, comparing them to nondisabled students and highlighting differences among disabilities. Chapter 3, titled "Characteristics of Students' Households" by Mary Wagner and others, provides detailed data on household composition (living arrangements, household size, disability prevalence, and disability differences), parents' characteristics (age, education, employment, disability differences, and demographic differences), and economic status (income, experience with benefit programs, children's health insurance coverage, transportation and telephone. A summary chapter highlights key findings and an appendix addresses methodological issues related to study design, sample, and analysis. (Contains 28 references and 32 exhibits.) (DB)

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September
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THE CHILDREN WE SERVE: THE DEMOGRAPHIC CHARACTERISTICS OF ELEMENTARY AND MIDDLE SCHOOL STUDENTS WITH DISABILITIES AND THEIR HOUSEHOLDS

Prepared for:

Office of Special Education Programs
U.S. Department of Education

Prepared by:

Mary Wagner, Camille Marder, and Jose Blackorby, with Denise Cardoso

SRI Project P10656

SEELS has been funded with Federal funds from the U.S. Department of Education, Office of Special Education Programs, under contract number ED-00-CO-0017. The content of this publication does not necessarily reflect the views or policies of the U.S. Department of Education nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

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ACKNOWLEDGEMENTS

A project as ambitious as SEELS can only be undertaken as a team effort. The authors wish to express their sincere thanks to the many members of the SEELS project team whose names do not appear in this report:

- To Lisa Holden-Pitt, Judith Holt, Louis Danielson, and others in the Office of Special Education Programs, U.S. Department of Education for their collegial support and guidance in many aspects of the study.
- To Kathryn Valdes and Harold Javitz, who provided leadership in constructing the sample for SEELS.
- To Lynn Newman, who guided the collection of the data reported here.
- To Julia Song, whose careful, responsive, competent, and creative computer programming support made this analytic task manageable.
- To Tom Cadwallader, Renee Cameto, Josh Cohen, Nadine Duong, Nicole Garza, Peggy Giacalone, Anita Groethe, Anne-Marie Guzman, Francisca Guzman, Phyl Levine, Claire Middleton, Ethan Miller, Renate Page, Ronald Orpitelli, John Rollin, Barbara Scofield, Soni Sing and other staff who have handled the countless data processing tasks associated with the study.
- To Frances Hernandez and Kristin Mills, whose management abilities have kept us on track, and to Betty Adams, Kemi Biyibi, Marion Collins, Sandra Collins, Joann Geren, and Luis Santos, whose administrative support has been invaluable.
- To our colleagues at Westat for their cooperation as subcontractors in conducting the telephone interviews that generated much of the data reported here.
- To our many other colleagues in the field of special education policy and research, who have provided input into the study design and shared their ideas with us as SEELS has taken shape, for contributing their creative views and expertise to the study.

And especially to the more than 9,000 students whose stories we tell here, and to their parents and guardians who care for them, for their willingness to share with us something of their experiences. Even from the distances imposed by survey research, the challenges they face and the courage and abilities they have in confronting them are clear.

1. INTRODUCTION

By Mary Wagner and Jose Blackorby

"In America, no child should be left behind. Every child should be educated to his or her full potential."

President George W. Bush (2001)

These words articulate the strong commitment of this country to the education of all its children. Although "no child left behind" only recently has become the phrase that encapsulates our national commitment and education agenda, the spirit behind it has been the foundation of federal special education legislation and policy for more than 25 years. Since 1975, when P.L. 94-142, the Education of All Handicapped Children Act (EHA), was passed, federal legislation and policy have been pivotal in moving children and youth with disabilities into the mainstream of public education so that they are better able to achieve their full potential, the ultimate goal of our education system.

In the years since P.L. 94-142, federal special education legislation has reflected demographic, social, economic, and political changes in our country, as well as lessons learned from serving an increasingly diverse student population. By 1997, EHA had evolved into the Individuals with Disabilities Education Act (IDEA), and that year it underwent another significant reshaping in the process of congressional reauthorization. The ensuing IDEA '97 (P.L. 105-17) was an effort to build on the "significant progress" under earlier legislation by:

- "Raising expectations for children with disabilities
- Increasing parental involvement in the education of their children
- Ensuring access to the general education curriculum
- Ensuring that regular education teachers are involved in planning and assessing children's progress
- Including children with disabilities in assessments, performance goals, and reports to the public
- Supporting quality professional development for all personnel who are involved in educating children with disabilities" (U.S. Department of Education, 1997).

IDEA '97 also recognized the importance of having solid information on the experiences and achievements of students with disabilities as a foundation for improving practice and accountability within schools. The legislation authorized the "production of new knowledge" [Sec. 673(b)(1)] through a variety of federal activities, including "producing information on the long-term impact of early intervention and education on results for individuals with disabilities through large-scale longitudinal studies" [Sec. 673(b)(2)(H)].

In carrying out the responsibility for producing new information on long-term impacts of education for students with disabilities, the Office of Special Education Programs (OSEP) of the U.S. Department of Education is implementing a portfolio of longitudinal studies that span the age range of children and youth with disabilities. The Special Education Elementary

Longitudinal Study (SEELS) is a key part of that portfolio, with its focus on the characteristics, experiences, and achievements of students with disabilities who were ages 6 through 12 in 1999 as they transition from elementary to middle and middle to high school. This document is the first in a series of publications of findings from SEELS that will emerge over the next several years. It presents information gathered from parents and guardians[1] of SEELS students through telephone interviews and a mail survey conducted in 2000-01.

An Overview of SEELS[2]

SEELS addresses key topics with information from a sample that represents students receiving special education in elementary and middle schools nationally. The more than 12,000 SEELS students represent students who were ages 6 to 12 on September 1, 1999, and receiving special education in first grade or higher. Findings represent students as a whole and students in each of the 12 federal special education disability categories used nationally. We know that students receiving special education differ from the general population of students in important ways; however, we also know that they differ from each other on many dimensions just as significantly (see, for example, Wagner et al., 1991). Disability differences are dramatic; students with visual impairments, for example, have markedly different experiences in school and in their postschool years than do students with mental retardation (Wagner, 1993; Wagner, D'Amico, Marder, Newman, & Blackorby, 1992). A key value of SEELS is its ability to depict these important disability-related differences for students nationally.

Another extremely valuable aspect of SEELS is its longitudinal design. SEELS will collect information for students three times over a 5-year period, years in which students go through important changes related to their physical, emotional, and cognitive development. We will be able to document the changes that accompany that development and identify early experiences that contribute to more positive results as students age and progress in school.

Finally, SEELS brings to bear information that represents the perspectives of both parents and schools on a wide range of topics. The issues addressed in this report are a small, though important, part of the wide array of issues about which SEELS will provide information in the coming years. The SEELS conceptual framework, presented in Exhibit 1-1, shows the comprehensive look at students' experiences that SEELS will support. Student and household characteristics are a fundamental first step in a progression of analyses and reports that will go on to depict the school programs and services of students as they change over time, including key issues such as their access to the general education curriculum and their participation in standardized testing. SELS also will focus on the experiences of children outside of school, including their participation in friendships, social activities, and their community. The achievements of students in and out of school will be of crucial concern, as will identifying the aspects of students, households, school programs, and nonschool experiences that contribute to more positive results for students over time.

To support this ambitious analysis agenda, parent interview/survey data, such as we report here, will be collected again in 2002 and 2004. Direct assessments of students' academic performance in reading and mathematics and in academic problem-solving and student

[1] For simplicity, parents and guardians are referred to here as parents.
[2] More details of the SEELS design and methods are presented in the appendix.

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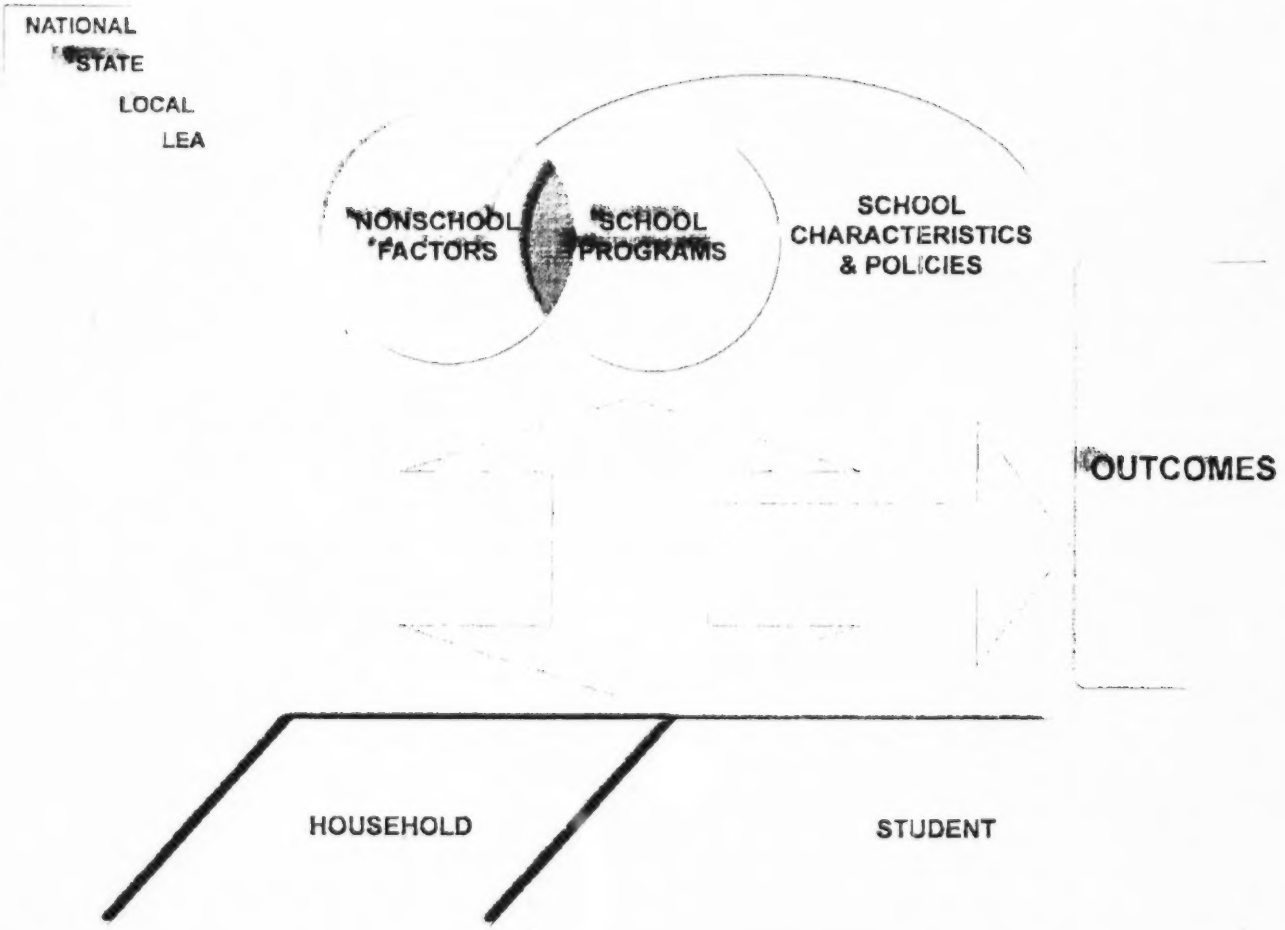

Exhibit 1-1
SEELS CONCEPTUAL FRAMEWORK

interviews regarding their self-concept and attitudes toward school were conducted in 2001 and will be repeated in 2002 and 2004 to track change over time. Finally, school staff surveys that capture important aspects of students' schools and individual educational programs were conducted in 2001 and will be repeated in 2002 and 2004. The rich, wide-ranging view of elementary and middle school students as they age provided by SEELS will support informed policy-making and improved practice for students with disabilities.

Focus of This Report

The SEELS conceptual framework is extremely comprehensive and addresses many aspects of students' experiences in and out of school. Therefore, we plan to organize the presentation of findings into reports that focus on specific themes (e.g., student characteristics, programs, results). In this initial look at SEELS findings, we examine the individual characteristics of students receiving special education in elementary and middle school and the households in which they were being raised.

Understanding the characteristics of students receiving special education is a crucial foundation for being able to serve them well. Students approach their educational experiences from a complex history and background that is shaped by demographic characteristics, such as age, gender, and ethnicity, and by family background and circumstances, such as parents' education, expectations, and household economic status. All of these characteristics and factors help structure students' involvement at home, at school, and in the community. Thus, student and household characteristics are essential elements of the context for many major life experiences of students. In important ways, an understanding of that context will inform how we understand and interpret students' experiences.

Our look at the students receiving special education in elementary and middle school addresses the following questions:

- What are the students' demographic characteristics?
- What are the characteristics of their households?
- How do these factors differ for students with different characteristics and from those of students in the general population?

Findings that address these questions are presented in several ways. First, we present the mean of continuous variables (e.g., the average age of students) or the overall frequency distribution of categorical variables (i.e., the weighted percentage of students living with both parents). We then present the distribution of each variable for important subgroups of students, including those who differ in their primary disability category and, often, other characteristics.

Readers should remember the following issues when examining the data tables.

- **Results are weighted.** All of the descriptive statistics presented in this report are weighted estimates of the national population of students receiving special education ages 6 to 13, as well as each disability category individually.
- **Standard errors.** For each mean and percentage in this report, we present a standard error (usually presented in parentheses), which indicates the precision of the estimate. For example, a variable with a weighted estimated value of 50% and a standard error of 2 means that the value for the total population, if it had been measured, would lie

between 48% and 52% (plus or minus 2 percentage points of 50%). Thus, small standard errors allow for greater confidence to be placed in the estimate, whereas larger ones require caution.

- **Small samples.** Although SEELS data are weighted to represent the population, the size of standard errors is influenced heavily by the actual number of students in a given group (e.g., a disability category or racial/ethnic group). Groups with very small samples will have comparatively large standard errors. In SEELS, for example, there are relatively few students with deaf-blindness (n=49), so estimates for that group have relatively large standard errors. Therefore, the reader should be cautious in interpreting results for this group and others with small sample sizes.

Organization of This Report

Chapter 2 presents information on the disability classifications and demographic characteristics of students with disabilities. These findings illustrate important ways in which students with disabilities are both similar to, and different from their peers without disabilities, as well as ways that they differ from each other. These findings provide an important lens through which to examine and interpret students' experiences and achievements. Chapter 3 presents information about students' households, including household composition, parental education and employment, and socioeconomic status. These factors provide an important picture of the environments in which students spent important formative years, during which they laid the groundwork for successful adjustment to adolescence. A summary chapter highlights key findings, and an appendix describes methodological issues related to the study design, sample, and analysis procedures.

2. DEMOGRAPHIC CHARACTERISTICS OF ELEMENTARY AND MIDDLE SCHOOL STUDENTS RECEIVING SPECIAL EDUCATION

By Camille Marder and Mary Wagner

The nature of a student's disability can be a powerful influence on his or her experiences, both in and out of school. However, other fundamental characteristics of children, in addition to whether or not they have disabilities, also help shape their development, relationships, experiences, and achievements. For young people, age is a major determinant of development that influences both children's competence and their independence. Gender is a defining characteristic of human beings and has both obvious and subtle influences on the ways children develop. In addition, racial/ethnic and language background can be associated with rich cultural traditions and patterns of relationships within families and communities that can generate important differences in values, perspectives, expectations, and practices regarding children.

The importance of understanding the demographic makeup of the population of students receiving special education cannot be overemphasized. The growing diversity of the American school population presents both opportunities and challenges to improving the results of schooling. Understanding important differences between students, including students with disabilities, is fundamental to serving them well. Understanding the characteristics of students with disabilities also is crucial in interpreting SEELS findings both for the group as a whole and for students with particular disability classifications, and it is a foundation for interpreting comparisons between students receiving special education and students in the general population.

In this chapter, we report on the variety of disabilities among elementary and middle school students receiving special education and describe other traits that are crucial to their experiences. We present the disabilities and demographic characteristics of the population of students with disabilities as a whole and compare them with the general population of students. Then we discuss variations in each demographic factor for students with different primary disabilities.

Students' Primary Disabilities

Exhibit 2-1 depicts the primary disability classifications assigned by schools to 6- to 13-year-olds who received special education in the 1999-2000 school year (Office of Special Education Programs, 2001). These students constituted 11.4% of all students in that age group who were enrolled in school in that year.

Almost three-fourths of students in this age group who were receiving special education were classified as having a learning disability (43%) or a speech impairment (30%). Those with mental retardation, emotional disturbances, or other health impairments were 9%, 6%, and 4% of students, respectively. The seven remaining disability categories each were fewer than 2% of students; together they comprised about 6% of students receiving special education. Thus, when findings are presented for students with disabilities as a whole, they represent largely the experiences of students with learning disabilities and speech/language impairments.

Exhibit 2-1
DISABILITY CATEGORY DISTRIBUTION OF CHILDREN RECEIVING SPECIAL EDUCATION, AGES 6 TO 13

Primary Disability Classification	Federal Child Count[3]		SEELS Weighted Percentage
	Number	Percentage	
Specific learning disability	1,428,939	43.20	41.54
Speech/language impairment	1,002,090	30.30	32.72
Mental retardation	292,833	8.82	8.84
Emotional disturbance	204,725	6.19	5.92
Hearing impairment	39,922	1.21	1.20
Visual impairment	14,658	.44	.45
Orthopedic impairment	42,406	1.28	1.29
Other health impairment	149,037	4.51	4.52
Autism	47,064	1.42	1.50
Traumatic brain injury	6,379	.19	.19
Multiple disabilities	59,685	1.80	1.80
Deaf-blindness	1,025	.03	.03
Developmental delay[4]	19,304	.58	–
TOTAL	3,307,067	100.00	100.00

It is important to note that, although we often refer to students receiving special education as "students with disabilities," the population of those with disabilities is larger than those receiving special education. For example, 5% of the general population of parents of children ages 6 through 12 reported that their children had a speech or language impairment, and almost 3% reported that their children had an emotional disturbance (National Center for Education Statistics, 2001). However, children of that age group who were receiving special education primarily for speech/language impairments and emotional disturbances constituted only 2.3% and .9% of students, respectively. This difference points up the fact that many children experience some degree of disability that is not recognized as a significant challenge to their ability to learn in traditional school settings and thus does not qualify them for special education.

Exhibit 2-1 demonstrates that the weighted distribution of SEELS students very closely approximates that of students in the nation. Thus, weighted findings from SEELS provide an accurate picture of the characteristics, experiences, and achievements of children receiving special education for the range of disabilities highlighted in Exhibit 2-1.

Age and Grade Level

The elementary and middle school years are times of tremendous growth in the physical, cognitive, psychological, and social domains. Thus, understanding the age of students is

[3] Data are for children ages 6 to 13 who were receiving services under IDEA, Part B, in the 1999-2000 school year in the 50 states and Puerto Rico (OSEP, 2001). The SEELS sample was selected using sampling fractions that were based on the 1999-2000 child count. Therefore, the correspondence of SEELS data to the child count reflects the fact that the sampling methods were effective in reflecting the national population.

[4] Students ages 8 and under who were classified by school districts as having a developmental delay were reassigned to other categories for purposes of weighting the SEELS sample, using information from parent interviews. Schools also will reassign them when they reach age 9 if they continue to receive special education.

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especially important for understanding their experiences, which change over time, sometimes dramatically.

Exhibit 2-2
STUDENTS' AGE AND GRADE LEVEL

	Percentage	Standard Error
Age		
6	6.0	.6
7	12.4	.8
8	14.9	.9
9	15.7	.9
10	18.0	.9
11	17.2	.9
12	12.9	.8
13	2.9	.4
Grade level		
1	10.8	.7
2	12.8	.8
3	15.3	.9
4	17.0	.9
5	17.6	.9
6	14.8	.9
7	7.6	.6
8 or above	2.4	.4
Ungraded	1.8	.3
Multigrade	.1	.1
Sample size	9,661	

Although students included in SEELS were ages 6 through 12 when they were selected, by the time interviews were conducted with parents, some 6-year-olds had turned 7 and some 12-year-olds had turned 13. Therefore, findings are reported here for students who were ages 6 through 13 (Exhibit 2-2). There were fewer 6- and 13-year-olds than there were children in each of the other ages represented in Wave 1. This is largely because of the aging of students between sample selection and interviews noted above.

The grade levels of students mirror the distribution of age, with fewer students in the first grade (11%) and the upper grades (10% in grades 7 or above) than in the other elementary and middle school grades. Almost 2% of students were in instructional settings where the students were not assigned to a specific grade level.

Each successive age or grade cohort includes students who were identified as eligible for special education services at that age/grade, as well as students identified earlier who still were receiving special education. Thus, for example, the 10-year-old cohort includes students identified as eligible for special education at age 10, as well as those identified at earlier ages and who still were receiving services at age 10. However, it does not include any students who received special education at earlier ages but had discontinued services by age 10 (e.g., a 6-year-old whose articulation impairment was ameliorated through speech therapy by age 9). Thus, the disability mix shifts across the age cohorts to the extent that some disabilities are more prevalent for younger children and others do not emerge until later.

The age and grade distributions of students in several disability categories suggest that some disabilities were more likely to begin or to be identified earlier than others or were ameliorated as children aged (Exhibit 2-3). For example, a concentration of disability among younger children was particularly evident among students with speech impairments; more than half of them were 9 years old or younger, compared with about one in three students with hearing impairments, for example ($p<.001$). At the other end of the continuum were students with learning disabilities, who tended to be older and more concentrated in the upper grades than students with many other disability classifications; those 12 or 13 years old comprised a significantly larger percentage of students with learning disabilities (22%) than students with most other classifications (e.g., 12% of those with orthopedic impairments and 8% of those with autism, $p<.05$). Students with emotional disturbances also tended to be older. In fact, research has demonstrated that this and the other health impairment category were the only two that had a sizable number of students identified for the first time as adolescents (Marder and Cox, 1991).

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In disability categories where students are older than peers on other disability categories, the reader should note that observed differences on some variables may be a function of age as well as of disability.

Exhibit 2-3
STUDENTS' AGE AND GRADE LEVEL, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retarda-tion	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Age												
6 or 7	6.6	35.4	15.3	12.3	17.7	18.3	23.2	13.1	28.2	13.9	22.6	7.6
	(1.0)	(2.2)	(1.7)	(1.5)	(2.1)	(2.3)	(2.2)	(1.7)	(2.4)	(3.3)	(2.3)	(8.9)
8	11.7	20.4	12.3	11.6	17.1	17.2	15.8	13.1	17.3	16.1	14.8	8.3
	(1.4)	(1.9)	(1.5)	(1.5)	(2.0)	(2.3)	(1.9)	(1.7)	(2.0)	(3.5)	(1.9)	(9.3)
9	14.9	15.2	17.4	18.9	15.0	17.2	19.3	15.6	19.9	14.6	14.9	12.7
	(1.5)	(1.7)	(1.8)	(1.8)	(1.9)	(2.3)	(2.1)	(1.8)	(2.1)	(3.4)	(1.9)	(11.2)
10	21.2	14.5	15.9	19.2	18.1	16.9	16.3	17.7	14.5	20.0	19.1	43.8
	(1.7)	(1.6)	(1.7)	(1.8)	(2.1)	(2.3)	(1.9)	(1.9)	(1.9)	(3.9)	(2.1)	(16.6)
11	23.4	8.5	20.4	17.6	14.3	15.3	13.1	21.6	12.0	20.3	13.7	21.7
	(1.8)	(1.3)	(1.9)	(1.8)	(1.9)	(2.2)	(1.8)	(2.1)	(1.7)	(3.9)	(1.9)	(13.8)
12 or 13	22.2	6.0	18.7	20.4	17.8	15.2	12.4	19.0	8.3	15.1	14.9	5.9
	(1.7)	(1.1)	(1.8)	(1.9)	(2.1)	(2.2)	(1.7)	(2.0)	(1.5)	(3.5)	(1.9)	(7.9)
Grade Level												
1	3.5	21.2	9.7	5.9	10.4	9.4	13.7	14.5	8.3	6.5	13.5	1.6
	(.8)	(1.9)	(1.4)	(1.1)	(1.7)	(1.8)	(1.8)	(1.9)	(1.9)	(2.4)	(1.9)	(4.3)
2	8.2	19.3	12.3	9.2	14.9	12.3	16.7	17.0	11.1	8.3	11.5	7.8
	(1.2)	(1.8)	(1.5)	(1.4)	(1.9)	(2.0)	(2.0)	(2.0)	(1.6)	(2.7)	(1.7)	(9.0)
3	12.5	19.2	15.0	14.2	14.0	19.0	16.6	15.1	14.6	15.9	14.8	7.4
	(1.4)	(1.8)	(1.7)	(1.6)	(1.9)	(2.4)	(2.0)	(1.9)	(1.8)	(3.6)	(1.9)	(8.8)
4	17.9	16.5	14.5	18.4	15.2	16.2	18.0	16.1	17.0	12.7	13.0	32.4
	(1.6)	(1.7)	(1.6)	(1.8)	(2.0)	(2.3)	(2.0)	(2.0)	(1.9)	(3.2)	(1.8)	(15.7)
5	22.2	12.2	16.4	17.1	17.5	16.5	14.2	11.0	20.6	19.2	14.3	4.5
	(1.8)	(1.5)	(1.7)	(1.8)	(2.1)	(2.3)	(1.8)	(1.7)	(2.0)	(3.8)	(1.9)	(7.0)
6	21.0	6.5	17.1	16.6	14.8	10.1	9.4	8.9	16.8	18.5	10.3	12.4
	(1.7)	(1.2)	(1.8)	(1.7)	(1.9)	(1.8)	(1.5)	(1.5)	(1.9)	(3.8)	(1.6)	(11.0)
7	10.3	3.4	7.5	13.8	7.7	7.5	7.9	3.1	9.3	5.8	2.8	5.4
	(1.3)	(.9)	(1.2)	(1.6)	(1.5)	(1.6)	(1.4)	(.9)	(1.5)	(2.3)	(.9)	(7.6)
8 or above	4.1	.8	1.7	2.5	2.2	1.4	.6	.3	.7	1.8	.9	.0
	(.9)	(.4)	(.6)	(.7)	(.8)	(.7)	(.4)	(.2)	(.4)	(1.3)	(.5)	(.0)
Ungraded	.4	.8	5.7	2.2	3.1	7.3	2.2	13.8	1.4	10.9	18.5	28.4
	(.3)	(.4)	(1.1)	(.7)	(.9)	(1.6)	(.8)	(1.8)	(.6)	(3.0)	(2.1)	(15.1)
Multi-grade	.0	.2	.3	.1	.3	.3	.7	.2	.1	.3	.5	.0
	(.0)	(.2)	(.2)	(.2)	(.3)	(.3)	(.5)	(.3)	(.2)	(.6)	(.4)	(.0)
Sample size:	1,043	829	861	865	1,024	803	977	1, 097	922	357	834	49

Standard errors are in parentheses.

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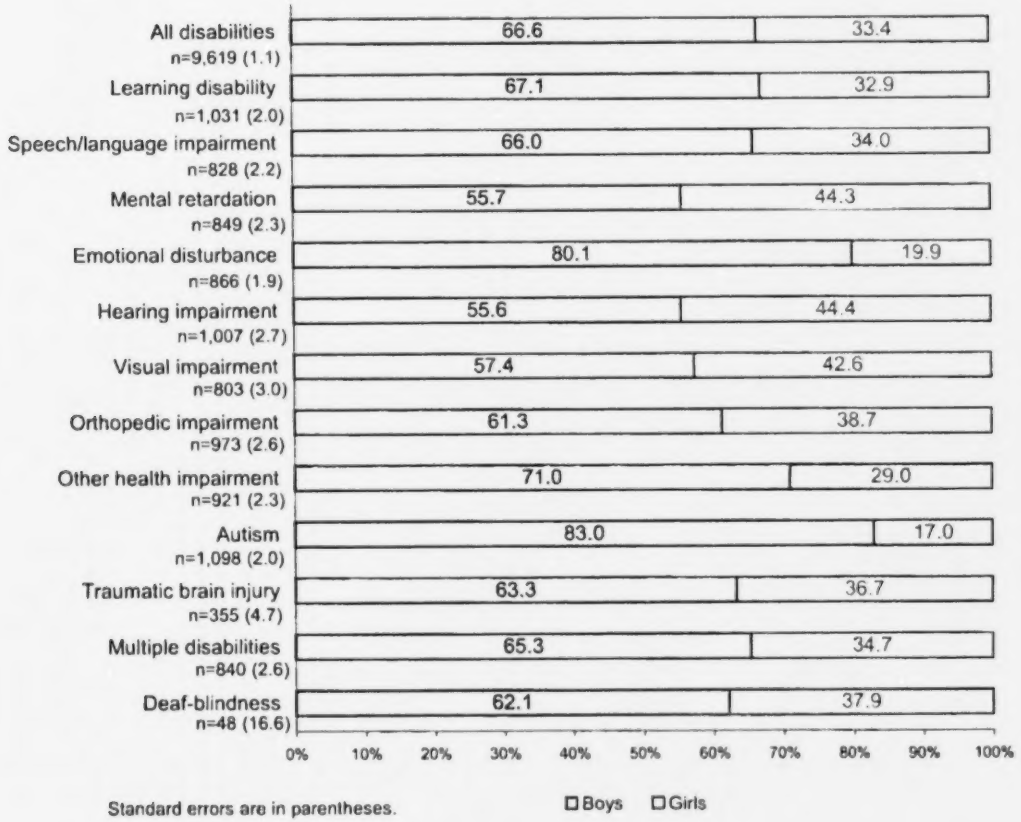
Gender

Whereas the general population of elementary and middle school students is split about evenly between boys and girls,[5] two-thirds of students receiving special education in the SEELS age-range were boys (Exhibit 2-4). The explanation for this phenomenon is unclear. Some research

Exhibit 2-4
STUDENT GENDER, BY DISABILITY CATEGORY



Standard errors are in parentheses.

has suggested that the higher proportion of boys among students receiving special education results from schools using identification and assessment practices that inaccurately identify boys more often than girls as having some kinds of disabilities (Shaywitz & Shaywitz, 2001). However, the National Early Intervention Longitudinal Study (NEILS)—which includes a nationally representative sample of children with disabilities or developmental delays or who

[5] In October 1999, males made up approximately 51% of elementary and middle school students (U.S. Census Bureau, 1999).

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were at risk of delay and who were birth to 30 months of age—found a similarly high proportion (61%) of boys among infants and toddlers with disabilities (Hebbeler et al., 2001). Thus, the disproportionate number of boys among children with disabilities seems to appear at very early ages, even before school practices come to bear. The pattern holds constant across the age range of students represented in SEELS and is consistent with patterns identified among high-school-age students (Marder & Cox, 1991). It also appears in all racial/ethnic groups; there were no differences in the proportion of boys among students of different racial/ethnic groups who were receiving special education. Whatever the reason for the disproportionate number of boys among students receiving special education, it is important to understand that the experiences of students with disabilities as a group disproportionately reflect the experiences of boys.

Boys comprised well over half the students in each disability category (Exhibit 2-4), with students with hearing and visual impairments and mental retardation coming closest to the equal distribution of boys and girls in the general population (56% and 57% boys, respectively). However, we note much larger proportions of boys in some disability categories. Boys represented at least 80% of students with emotional disturbances and autism, and between 60% and 70% of students with several other disability classifications.

Racial/Ethnic Background

Research has provided considerable evidence that "disability has long been linked to the conditions of poverty, family structure, and minority status. Analyses of national data consistently find nonrandom rates of occurrence for illness, injury, and chronic health conditions across racial and ethnic boundaries" (Center on Emergent Disability, 2001; see also Bradsher, 1995; Fujiura, 1998). A recently completed comprehensive report on minority participation in special and gifted education (National Research Council, 2002) has documented a wide range of personal, social, and environmental factors that research has demonstrated are linked to a higher rate of disability among minority and low-income individuals and households, suggesting the complex intertwining of these factors for students with disabilities.

The disproportionate representation of some minorities in special education was evident among elementary and middle school students receiving special education (Exhibit 2-5). Although white students made up approximately the same percentage of students receiving special education (63%) as they did of the general population of same-age students (61%), small but statistically significant differences were apparent between the two populations for African American students. African Americans constituted 19% of students receiving special education, compared with 17% of students in the general population ($p<.05$). In contrast, Hispanics were a somewhat smaller proportion of the population of students receiving special education relative to students as a whole (14% vs. 16%, $p<.001$).

Such differences in the distributions of the various races/ethnicities occur even among infants and toddlers with disabilities. NEILS found that, among children with disabilities ages birth to 30 months, 21% were African American, compared with 15% in the general population of children of the same age (Hebbeler et al., 2001). Similarly, 15% of infants and toddlers with disabilities were Hispanic, compared with 19% in the general population of that age group. Thus, some degree of the disproportionate representation of African American and of Hispanic children among children with disabilities appears to predate their school enrollment.

Exhibit 2-5
RACIAL/ETHNIC BACKGROUNDS OF STUDENTS WITH DISABILITIES AND STUDENTS IN THE GENERAL POPULATION

Students Receiving Special Education (Percentage)		General Population of Students[a] (Percentage)	
White	63.2 (1.2)	White	61.3
African American	19.2 (.9)	Black	17.1*
Hispanic	13.7 (.8)	Hispanic (any race)	16.5***
Asian/Pacific Islander	1.6 (.3)	Other	5.1
American Indian/ Alaska Native	.7 (.2)		
Other	1.7 (.3)		
Sample size	9,739		

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, *** = p<.001.

[a] U.S. Bureau of the Census, 2000. Data are for 5- to 14-year-olds.

The racial/ethnic composition of students receiving special education was not markedly different from that of the general population for students with learning disabilities or hearing, visual, or orthopedic impairments (Exhibit 2-6). However, African Americans were very disproportionately represented in several of the disability categories: 35% of students with mental retardation, 27% of students with emotional disturbances, 30% of students with multiple disabilities, and 28% of students with traumatic brain injuries were African American, compared with 17% of the general population in this age group ($p<.001$ for all differences). In contrast, Hispanic students made up 16% of students in the general population, but they accounted for a small proportion (between 7% and 13%) of students with emotional disturbances, speech/language impairments, autism, mental retardation, and other health impairments ($p<.001$ for all differences). Similarly, Asian/Pacific Islanders, who constituted 4% of the general population of students, made up even smaller percentages of students in many of the disability categories; for example, they were fewer than 1% of students with learning disabilities and other health impairments ($p<.01$).

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Exhibit 2-6
STUDENTS' RACIAL/ETHNIC BACKGROUNDS, BY DISABILITY CATEGORY

Percentage of students who were:	General Population[a]	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Autism	Other Health Impairment	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
White	61.3	62.2	66.7	53.5	56.9	64.3	62.4	65.0	66.0	77.0	57.0	53.2	60.9
		(2.0)	(2.2)	(2.3)	(2.3)	(2.6)	(2.9)	(2.5)	(2.5)	(2.1)	(4.8)	(2.7)	(16.4)
African American	17.1	17.9	15.7	34.7	27.0	14.4	17.7	17.5	16.9	13.1	28.1	30.5	9.8
		(1.6)	(1.7)	(2.2)	(2.1)	(1.9)	(2.3)	(2.0)	(2.0)	(1.7)	(4.3)	(2.5)	(9.9)
Hispanic	16.5	16.4	12.5	8.9	12.8	16.0	15.0	14.5	11.0	7.2	11.1	14.1	18.5
		(1.6)	(1.5)	(1.3)	(1.6)	(2.0)	(2.2)	(1.8)	(1.7)	(1.3)	(3.0)	(1.9)	(13.0)
Asian/Pacific Islander	NA	.7	2.7	1.5	.6	4.0	3.3	2.0	4.5	.4	2.1	1.3	2.0
		(.4)	(.8)	(.6)	(.4)	(1.1)	(1.1)	(.7)	(1.1)	(.3)	(1.4)	(.6)	(4.7)
American Indian/ Alaska Native	NA	.9	.4	.3	1.1	.6	.4	.2	.5	.9	1.3	.2	7.9
		(.4)	(.3)	(.3)	(.5)	(.4)	(.4)	(.3)	(.4)	(.5)	(1.1)	(.3)	(9.0)
Sample size	NA	1,050	835	866	875	1,033	815	990	1,101	923	360	842	49

Standard errors are in parentheses.

(a) U.S. Bureau of the Census, 2000. Data are for 5- to 14-year-olds. Data for Asian/Pacific Islander and American Indian/Alaska Native are included in the category "Other" and therefore have no values in this table.

Language Spoken at Home

Among students represented in SEELS, 16% spoke a language other than English at home at least occasionally. However, 92% spoke English most of the time (Exhibit 2-7). Almost all students who did not speak primarily English at home spoke Spanish (6%). Fewer than 2% of students were reported to use a spoken language other than English or Spanish at home most of the time. Fewer than 1% of students used sign language most often at home, and a similarly small number did not use spoken language at all.

The particularly small proportion of students reported to speak a language other than English or Spanish at home is, at least in part, an artifact of the SEELS parent interview being restricted to conduct in either English or Spanish language. Consequently, students who spoke languages other than English or Spanish in the home almost certainly are underrepresented in the parent inteview/family survey data.

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Exhibit 2-7
LANGUAGE MOST OFTEN SPOKEN AT HOME, BY STUDENTS' RACE/ETHNICITY

	All Students with Disabilities	Student's Race/Ethnicity				
		White	African American	Hispanic	Asian/Pacific Islander	American Indian/Alaska Native
Percentage whose primary language at home was:						
English	92.1	98.8	98.7	56.4	66.7	87.7
	(.7)	(.3)	(.7)	(3.8)	(11.4)	(12.0)
Spanish	5.8	.3	.4	38.1	.0	.3
	(.6)	(.2)	(.4)	(3.7)	(.0)	(2.1)
Sign language	.3	.4	.1	.3	.3	.1
	(.1)	(.2)	(.2)	(.4)	(1.4)	(1.0)
Other[a]	1.8	.6	.8	5.3	33.0	12.0
	(.3)	(.5)	(.5)	(1.7)	(11.4)	(11.8)
Sample size	8,682	5,478	1,824	1,063	180	45

[a] Includes students who did not use spoken language.

Standard errors are in parentheses.

English was the predominant language at home for students in all racial/ethnic groups, ranging from 92% of white students to 56% of Hispanic students. Overall, 38% of Hispanic students spoke Spanish at home most of the time (the almost 5% of Hispanic students reported to speak a language other than English or Spanish at home may be students from non-Spanish speaking countries in the Caribbean or Latin America). Although SEELS respondents had to know English or Spanish to complete the interview or survey, almost one-third of Asian students and more than 10% of American Indian/Alaska Native students spoke a language other than English or Spanish at home most of the time.

The proportion of students who spoke English most of the time at home approached 90% or more for all disability categories except hearing impairment (Exhibit 2-8), 16% of whom used sign communication most of the time at home. Speaking Spanish at home was most common among students with learning disabilities (7%) or visual impairments (8%), the groups with the highest percentages of Hispanics, and least common among students with other health impairments (1%) or deaf-blindness (2%).

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Exhibit 2-8
PRIMARY LANGUAGE SPOKEN BY STUDENTS AT HOME, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retarda-tion	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Orthopedic Impairment	Autism	Other Health Impairment	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage of students whose primary language was:												
English	9.0	93.1	93.1	95.0	75.6	89.0	89.9	92.3	97.9	92.8	91.0	73.8
	(1.4)	(1.3)	(1.3)	(1.1)	(2.6)	(2.1)	(1.7)	(1.4)	(.7)	(2.7)	(1.6)	(17.0)
Spanish	7.4	5.6	3.7	4.5	4.7	8.2	6.8	3.3	1.1	5.8	5.0	1.8
	(1.2)	(1.2)	(1.0)	(1.0)	(1.3)	(1.8)	(1.5)	(1.0)	(.5)	(2.4)	(1.9)	(13.0)
Sign language	.7	2.7	1.5	.6	4.0	3.3	2.0	4.5	.4	2.1	1.3	2.0
	(.4)	(.8)	(.6)	(.4)	(1.1)	(1.1)	(.7)	(1.1)	(.3)	(1.4)	(.6)	(4.7)
Other	16.4	12.5	8.9	12.8	16.0	15.0	14.5	11.0	7.2	11.1	14.1	18.5
	(1.6)	(1.5)	(1.3)	(1.6)	(2.0)	(2.2)	(1.8)	(1.7)	(1.3)	(3.0)	(1.9)	(13.0)
Sample size	871	724	738	739	874	705	848	915	1,083	314	830	41

Standard errors are in parentheses.

This picture of the demographic characteristics of elementary and middle school students with disabilities is enhanced by an examination of the characteristics of their households, which is presented in the next chapter.

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3. CHARACTERISTICS OF STUDENTS' HOUSEHOLDS

By Mary Wagner, Camille Marder, and Denise Cardoso

A child's household is his or her first educational setting. At home, children form their first emotional attachments, achieve their early developmental milestones, and acquire the foundation for their subsequent growth and learning. As they grow up, what they need from their families and others who share their households may change, but children continue to have their values, expectations, and preferences shaped by their experiences at home.

As important as their home setting is for all children, the disabilities of students receiving special education may make them particularly in need of attention, support, resources, and advocates at home. At the same time, their disabilities and the needs that accompany them may create added demands and stresses for other children and adults in their households. Thus, the already complex dynamics of households with children can be made even more complex by the added element of a child's disability. How families respond to that complexity can influence the family system itself and the nature of the childhood years.

In this chapter, we examine several key characteristics of the households of elementary and middle school students with disabilities. We look first at student's living arrangements and the people who composed their households. For students who lived with parents, we then describe the characteristics of their parents, including such factors as their age, education, and marital status. We conclude with a discussion of the economic status of households and its interrelationship with ethnicity and disability. Together, these can represent crucial influences on students' experiences and achievements.

Household Composition

The composition of households of America's children has changed dramatically in recent decades, with a marked decline in traditional two-married-parent households and an accompanying increase in single-parent, blended, and multigenerational families (U.S. Census Bureau, 2000). The composition of children's households can have serious implications for their economic security, emotional support, and, potentially, many aspects of their development. These may, in turn, affect their experiences and performance in school.

In this section, we focus on three aspects of the households of elementary and middle school students with disabilities. First, we address the fundamental question of with whom students were living—with parents, other family members, legal guardians, or in foster care or institutional settings. We then consider the number of members of students' households and, finally, whether households included other members with disabilities.

Living Arrangements

The importance of the role parents play in the development of their children cannot be underestimated. Fathers and mothers contribute in different, but crucial ways, to giving children the emotional and physical resources they need to grow into healthy and well-adjusted members of their families, schools, and communities. Children raised in single-parent families have been

found to experience significantly poorer outcomes in several domains compared with children raised in two-parent households (Shonkoff & Phillips, 2000). Yet, 28% of families with children under 18 in the general population are maintained by one parent, and more than half a million children live in foster care (U.S. Department of Health and Human Services, 2001).

The living arrangements of students with disabilities closely mirrored those of the general population of students (Exhibit 3-1). Like students as a whole, a large majority of students with disabilities (70%) lived in households with two parents (either biological, step, or adoptive parents). Twenty-three percent lived with one parent. Thus, 93% of students with disabilities were living with a parent. An additional 4% lived with other adult family members in households that did not include one of their own parents, a marginally higher rate than the general population (3%, $p<.05$). Two percent of students with disabilities lived with a legal guardian that was not a family member. One percent lived in foster care, a rate twice as high as children in the general population ($p<.05$; U.S. Department of Health and Human Services, 2001a). One in a thousand students with disabilities lived full time at a residential school or institution.[6]

Exhibit 3-1
LIVING ARRANGEMENTS OF STUDENTS WITH DISABILITIES AND STUDENTS IN THE GENERAL POPULATION

	Students with Disabilities	Students in the General Population[a]
Percentage of children living:		
With two parents	70.3 (1.1)	70.5
With one parent	23.1 (1.1)	25.9
With relative(s)	3.8 (.5)	2.8
With legal guardian (not a relative)	1.6 (.3)	[b]
In foster care	1.0 (.2)	.5
In a residential school or institution full time	.1 (.1)	[b]
In another arrangement	.1 (.1)	.3[b]
Sample size	9,166	

[a] Figures are for 5- to 14-year-old children. Federal Interagency Forum on Child and Family Statistics (2001).

[b] Published data do not include the categories "with a legal guardian" or "in residential school or institution;" children living with legal guardians are included in the "other arrangement" category.

Standard errors are in parentheses.

Marital Status

The proportion of students with disabilities with married parents (69%) was virtually identical to that of the general student population (67%).[7] Fifteen percent of students lived with a previously married parent who was divorced or widowed when interviewed, as were 17% of students in the general population. Eight percent of students with disabilities lived with a single, never-married parent.

[6] These included residential or boarding schools, hospitals, mental health facilities, group homes, and correctional facilities.

[7] These figures are for women ages 30 to 44, an age group similar to the majority of mothers of students with disabilities (Fields & Casper, 2001).

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Household Size

The size of households can influence many aspects of children's experiences at home. For example, more adults in a household can improve the economic status of a family by increasing earnings and potentially can provide greater ongoing supervision and support for children. More children in a household can place greater demands on the emotional and economic resources of families.

Exhibit 3-2
SIZE OF HOUSEHOLDS OF STUDENTS WITH DISABILITIES AND STUDENTS IN THE GENERAL POPULATION

	Students with Disabilities	Students in the General Population[a]
Average number of household members	4.6 (.04)	4.5 (.02)
Percentage of households with:		
One to three members	19.9 (1.0)	21.4 (.7)
Four members	33.1 (1.2)	34.4 (.8)
Five or six members	36.8 (1.2)	36.2 (.8)
Seven or more members	10.2 (.8)	7.9 (.4)
Average number of adults in the household	1.9 (.02)	1.9 (.01)
Percentage of households with:		
One adult	20.7 (1.0)	25.5 (.7)
Two adults	67.1 (1.2)	64.8 (.8)
More than two adults	12.2 (.8)	11.7 (.5)
Average number of children in the household	2.7 (.04)	2.5 (.02)
Percentage of households with:		
No more than one child	15.8 (.9)	15.2 (.6)
Two or three children	63.1 (1.2)	67.3 (.8)
Four or more children	21.7 (1.0)	17.5 (.6)
Sample size	8,525	9,584

Standard errors are in parentheses.
[a] Computed using data for 6- to 12-year-olds from the National Household Education Survey, 1999.

Approximately 70% of both students with disabilities and students in the general population lived in households of between four and six people (Exhibit 3-2). Although the average household size for both groups was approximately 4.5, fewer students with disabilities were living in households with only one adult (21% vs. 26%, $p<.01$), and more were living in households with four or more children ($p<.05$ for both comparisons).

Prevalence of Disabilities

SEELS findings suggest that disability is not always an individual trait but can concentrate in families. Approximately 39% of children with disabilities lived in households in which another member was reported to have a disability. It was more common for disability to affect another child (31%) than an adult (17%) in the household. Eight percent of children lived in households in which one or more adults as well as one or more other children also had a disability.

Disability Differences in Household Composition

Living arrangements varied considerably for students in different disability categories (Exhibit 3-3). The percentages of students with learning disabilities or hearing, visual, orthopedic, or other health

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Exhibit 3-3
HOUSEHOLD COMPOSITION, BY DISABILITY CATEGORY

Percentage of children living:	General Population[a]	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
With both parents	70.5	69.7	77.7	56.3	52.2	73.9	75.0	73.7	73.2	77.6	59.2	57.4	58.1
		(2.0)	(2.0)	(2.4)	(2.4)	(2.5)	(2.7)	(2.4)	(2.2)	(2.2)	(5.0)	(2.7)	(18.3)
With one parent	25.9	23.9	19.2	30.7	30.7	21.1	19.0	19.7	19.9	20.3	27.7	31.9	36.2
		(1.9)	(1.9)	(2.3)	(2.2)	(2.3)	(2.4)	(2.2)	(2.0)	(2.2)	(4.5)	(2.5)	(17.8)
With relative(s)	2.8	3.5	2.2	8.2	8.0	2.9	2.4	4.3	4.1	.9	6.6	5.8	2.6
		(.8)	(.7)	(1.3)	(1.3)	(1.0)	(.9)	(1.1)	(1.0)	(.5)	(2.5)	(1.3)	(5.9)
With legal guardian (not a relative)	(b)	1.6	.9	2.0	3.8	1.5	2.1	1.1	2.4	.9	4.1	2.1	2.1
		(.6)	(.4)	(.7)	(.9)	(.7)	(.9)	(.6)	(.8)	(.5)	(2.0)	(.8)	(5.3)
In foster care	.5	1.0	.1	2.3	4.6	.2	1.0	1.0	.3	.2	2.1	1.9	.0
		(.4)	(.2)	(.7)	(1.0)	(.2)	(.6)	(.6)	(.3)	(.2)	(1.4)	(.7)	(.0)
In a residential school or institution	(b)	.1	.0	.2	.2	.4	.6	.1	.0	.2	.4	.5	1.0
		(.1)	(.0)	(.2)	(.2)	(.4)	(.5)	(.2)	(.0)	(.2)	(.6)	(.4)	(3.7)
In another arrangement	.3	.2	.0	.4	.4	.0	.0	.1	.1	.0	.0	.4	.0
		(.2)	(.0)	(.3)	(.3)	(.0)	(.0)	(.1)	(.1)	(.0)	(.0)	(.4)	(.0)
Percentage with a never-married parent	NA	8.4	6.8	14.2	10.6	7.3	7.2	6.5	5.1	6.5	15.7	16.5	4.8
		(1.2)	(1.2)	(1.7)	(1.5)	(1.5)	(1.6)	(1.4)	(1.1)	(1.3)	(3.7)	(2.0)	(7.9)
Average household size	4.5	4.7	4.7	4.7	4.4	4.5	4.4	4.4	4.3	4.2	4.7	4.4	4.3
	(.02)	(.1)	(.1)	(.1)	(.1)	(.1)	(.1)	(.1)	(.1)	(.1)	(.2)	(.1)	(.4)
Percentage reporting any household member had a disability	NA	42.0	35.7	42.1	45.7	34.4	27.2	29.7	39.1	26.8	33.9	34.2	53.3
		(2.3)	(2.4)	(2.5)	(2.5)	(2.9)	(2.9)	(2.7)	(2.5)	(2.4)	(5.0)	(2.6)	(19.3)
Sample size		847	705	724	721	858	695	825	907	1,075	307	796	40

Standard errors are in parentheses

a Figures are for 5- to 14-year-old children. Federal Interagency Forum on Child and Family Statistics (2001).
b Published data do not include the categories "with a legal guardian" or "in residential school or institution;" children living with legal guardians are included in the "other arrangement" category.

impairments who were living with two parents were about the same as for the general population. However, significantly more students with autism or speech impairments (almost 80% of both groups) and significantly fewer students with mental retardation, emotional disturbances, traumatic brain injuries, multiple disabilities, or deaf-blindness (52% to 59%) lived with two parents ($p<.05$ compared with students with learning disabilities, for example). Students with mental retardation, multiple disabilities, or deaf-blindness were most likely to be living with a never-married parent (16% to 24%, $p<.01$ compared with students with learning disabilities).

Students in most categories and students in the general population were equally likely to be living with adults other than their parents. However, students with mental retardation, emotional disturbances, traumatic brain injuries, or multiple disabilities were more likely to live with other relatives (6% to 8%), legal guardians (2% to 4%), or foster parents (2% to 5%) than most other students with disabilities.

The average household size did not differ significantly for students in the various disability categories. In addition, the likelihood of having at least one other person in the household with a disability was higher than the general population for students in all disability categories, but it was particularly likely for students with learning disabilities, mental retardation, emotional disturbances, or deaf-blindness (42% to 53%).

Demographic Differences in Household Composition

There were no significant differences in household composition for students of different ages or for boys and girls. However, there were significant differences among students of the various races/ethnicities.

The living arrangements of African American students with disabilities were quite different from those of the other racial/ethnic groups (Exhibit 3-4). Significantly fewer African American students were living with both parents (40%) than was the case for any other group ($p<.001$). This difference is similar to that found in the general population, in which fewer than half of African American families (48%) were married-couple families (U.S. Bureau of the Census, 2000). Almost half of African American students with disabilities lived with one parent ($p<.05$ compared with whites and Hispanics), and 30% lived with a never-married parent. Consistent with these findings, the average number of adults in households of African American families (1.7) was significantly smaller than for other groups (2.0 and 2.2 for white and Hispanic students, respectively, $p<.001$). In addition to having fewer adults, households of African American children also had more children (2.9 vs. 2.6 for white students, $p<.01$). Further, almost half (46%) of African American students lived in households in which at least one other person had a disability, more than white, Hispanic, or Native American students ($p<.05$), suggesting a further limitation on earnings and a further demand on household resources in households of African American students than others.

Among African American students, 8% lived with relatives, and almost 4% lived with non-relative legal guardians, higher rates of such arrangements than white or Hispanic students. They also were three times more likely than white or Hispanic children to be living in foster care, which is similar to the racial/ethnic differences in such placements among students in the general population; 34% of children in foster care were African American, although they were only 17% of the general population of children (U.S. Department of Health and Human Services, 2001).

Exhibit 3-4
HOUSEHOLD COMPOSITION, BY STUDENTS' RACE/ETHNICITY

	White	African American	Hispanic	Asian/ Pacific Islander	American Indian/Alaska Native
Percentage of children living:					
With both parents	79.9 (1.2)	37.4 (2.8)	72.2 (3.3)	83.2 (8.5)	62.8 (15.7)
With one parent	16.0 (1.1)	48.4 (2.9)	22.9 (3.1)	10.0 (6.9)	15.2 (11.7)
With relative(s)	2.3 (.5)	7.8 (1.6)	3.3 (1.3)	3.2 (4.0)	16.7 (12.1)
With a legal guardian (not a relative)	1.0 (.3)	3.6 (1.1)	.9 (.7)	3.5 (4.2)	3.5 (5.9)
In foster care	.7 (.3)	2.2 (.8)	.6 (.6)	.0 (.0)	1.7 (4.2)
In residential school or institution	.1 (.1)	.1 (.1)	.1 (.1)	.0 (.0)	.1 (.8)
In another arrangement	.0 (.1)	.7 (.5)	.0 (.0)	.1 (.7)	.0 (.0)
Percentage living with a never-married parent	2.7 (.5)	30.5 (2.6)	5.6 (1.7)	7.4 (6.0)	10.9 (10.1)
Average household size					
All members	4.6 (.1)	4.6 (.1)	5.1 (.1)	4.5 (.4)	3.9 (.5)
Children	2.0 (.1)	1.7 (.1)	2.2 (.1)	2.2 (.2)	1.8 (.2)
Adults	2.6 (.1)	2.9 (.1)	2.9 (.1)	2.4 (.3)	2.1 (.5)
Percentage reporting any other member of household had a disability	39.4 (1.5)	46.1 (3.0)	32.2 (3.6)	28.5 (11.3)	15.5 (13.7)
Sample size	5,366	1,779	1,050	170	44

Although Hispanic students were significantly more likely than white students to live with one parent (23% vs. 16%, $p<.05$), the average size of households of Hispanic students (5.1 members) was significantly larger than that of white, African American, or American Indian/Alaska Native students (4.6, 4.6, and 3.9, respectively, $p<.05$).

Parents' Characteristics

Parents' skills and attributes can have important implications for the ways they fulfill their parenting role. For example, their confidence in their parenting may be influenced by age and education, which also may influence the nature and quality of their employment opportunities and, in turn, the economic status of their households. In this section, we examine several important aspects of the parents of students with disabilities.

Parents' Age

The age of parents can influence children in many ways. Older parents can bring more maturity to their parenting responsibilities. They also may have advanced further in the workplace and be able to provide better for their families financially. On the other hand, younger parents can have greater energy to devote to their parenting duties. Further, the age of a parent at a child's birth, particularly the mother, also can be important. Teenage motherhood is associated with a variety of poor outcomes for both mothers and their children (Maynard, 1996), whereas children born to mothers in their later years are more likely to have complications at birth and conditions associated with some kinds of disabilities (e.g., Down syndrome).

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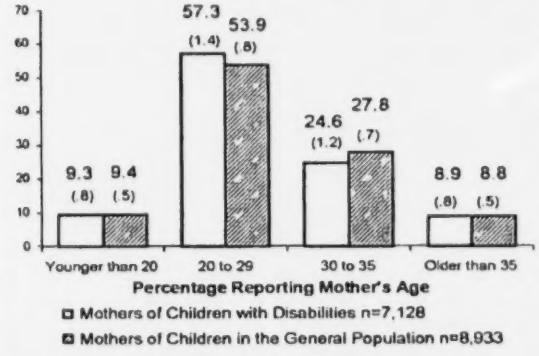
SEELS findings show that the average age of the parents/legal guardians of students with disabilities was 38 at the time parents were interviewed. Half of the students had parents who reported being in their 30s and one-third were in their 40s. About 8% were in their 20s, and the same percentage were in their 50s.

Exhibit 3-5
MOTHER'S AGE AT CHILD'S BIRTH FOR STUDENTS WITH DISABILTIES AND STUDENTS IN THE GENERAL POPULATION



Standard errors are in parentheses.

Similar to the general population of students, most students with disabilities were born to mothers who were between ages 20 and 35[8] (Exhibit 3-5), although they were somewhat more likely to have been born to mothers in their 20s than mothers of children in general[9] (57% vs. 53%, $p<0.5$). Almost one in 10 students in both groups were born to teen mothers, and similar percentages of both groups were born to mothers who were older than 35. Thus, both groups were equally likely to have been born to mothers who were either relatively young or old for childbearing.

Parents' Education

Higher levels of parental education often have been linked to student success in school. This link is believed to be related to such important qualities as the home literacy environment, parental teaching styles, allocation of household resources to promote learning, and involvement in children's schools (Shonkoff & Phillips, 2000). These and related factors may be particularly important to students with disabilities, who face learning challenges. However, students with disabilities had both mothers and fathers who tended to have lower levels of education than parents of students in the general population (Exhibit 3-6). Among students in the general population, approximately one-fourth had mothers who were college graduates, whereas considerably fewer students with disabilities had mothers who were college graduates (16%, $p<.001$). Students with disabilities were significantly more likely to have mothers who had completed only a high school education (38% vs. 30%, $p<.001$).

[8] These findings refer to the birth of the child in the SEELS sample. It is unknown whether mothers had had other children previously.

[9] Mothers of children in the general population numbers computed using data from the National Household Education Survey, 1999.

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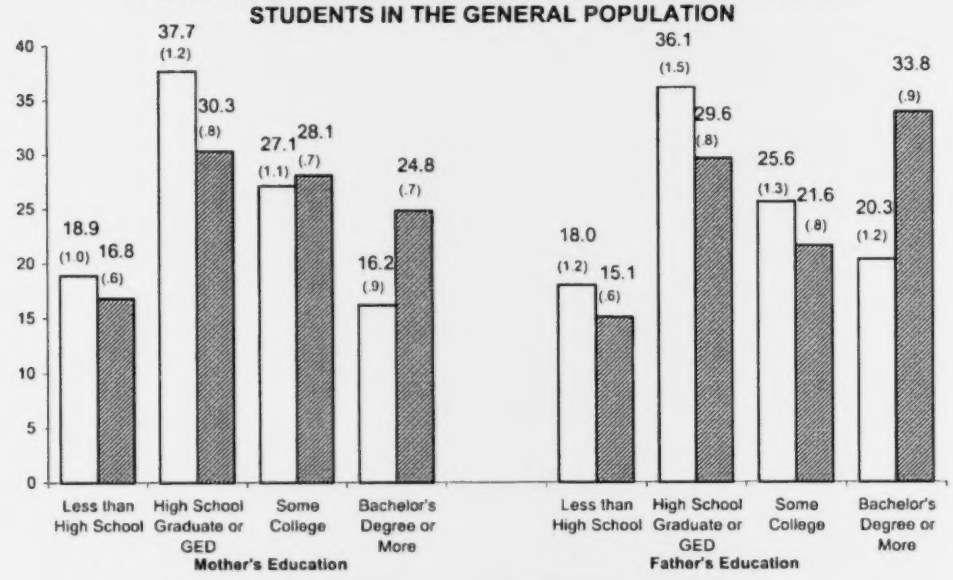
Exhibit 3-6
EDUCATION OF PARENTS OF STUDENTS WITH DISABILITIES AND STUDENTS IN THE GENERAL POPULATION



Standard errors are in parentheses. (a) Computed using data from the National Household Education Survey, 1999.

(a) Computed using data from the National Household Education Survey, 1999.
Standard errors are in parentheses.

A similar pattern was apparent for fathers. Only 20% of students with disabilities had fathers who were college graduates, compared with 34% of students in the general population ($p<.001$). More students with disabilities than those in the general population had fathers who had not finished high school (18% vs. 15%, $p<.05$) or had completed high school only (36% vs. 30%, $p<.001$).

Parents' Employment

Participation in the labor market is the primary way most families generate the financial resources required to meet their needs. Working parents tend to be able to provide more effectively for their children. At the same time, when both parents work, there is less time available to spend with students in providing emotional support, engaging in activities that promote positive development, and becoming involved in students' schooling. The employment status of households is an important ingredient in an understanding of the household context in which children grow up.

The employment patterns of parents of students with disabilities were not significantly different from those of parents in the general population (Exhibit 3-7). Almost half of students with disabilities had mothers who were employed full-time (at least 35 hours a week), and 30% had mothers who were not employed. Not surprisingly, a much higher percentage of fathers than mothers, both of students with disabilities and the general population, were employed full time. In 1999, the national economy was robust, and that economic health was reflected in high full-

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time employment rates of men. Eighty-eight percent of students with disabilities had fathers who were employed full time.

Exhibit 3-7
EMPLOYMENT OF PARENTS OF STUDENTS WITH DISABILITIES AND STUDENTS IN THE GENERAL POPULATION

	Students with Disabilities	Students in the General Population[a]
Mothers' employment (percentage)		
Full time	47.3	45.3
	(1.3)	(.8)
Part time	23.0	23.1
	(1.1)	(.7)
Not employed	29.8	31.6
	(1.3)	(.8)
Fathers' employment (percentage)		
Full time	88.2	90.4
	(.8)	(.5)
Part time	4.2	3.3
	(.6)	(.3)
Not employed	7.6	6.3
	(1.0)	(.4)
Sample size	8,651	9,177
Sample size	6,019	7,053

Standard errors are in parentheses.

[a] Computed using data from the National Household Education Survey, 1999.

Disability Differences in Parents' Characteristics

There were significant differences in the characteristics of parents of students in different disability categories (Exhibit 3-8). For example, the percentage of students whose mothers had not completed high school ranged from fewer than 10% of students with autism to approximately 21% of students with learning disabilities or emotional disturbances and 30% of students with mental retardation.

For the most part, the characteristics of parents of students in most disability categories were similar to those of parents in the general population. However, parents of several groups of students exhibited a different pattern. Students with mental retardation were more likely to have been born to teenage mothers (16% vs. 10% of students with learning disabilities, for example, $p<.001$); to have mothers with less than a high school education (30% compared with 25% of students with learning disabilities, $p<.01$); and to have an unemployed father (14% vs. 8% for students with learning disabilities, $p<.05$).

Parents of students with autism also stood out in comparison with those of many other groups of students. A much larger percentage of these students were born to mothers older than 35 (14% vs. 6% of those with hearing impairments, for example, $p<.01$), and significantly fewer had mothers and fathers who had not completed high school (6% vs. 16% and 19% of mothers and fathers of students with hearing impairments, $p<001$).

Demographic Differences in Parents' Characteristics

There were no significant differences in parents' characteristics between parents of boys and girls or students of different ages. However, characteristics of parents of children of different

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Exhibit 3-8
PARENTS' CHARACTERISTICS, BY DISABILITY CATEGORY

	General Population[a]	Learning Disability	Speech/ Language Impairment	Mental Retarda-tion	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage of mothers who at child's birth were:													
Younger than 20	9.4	10.1	7.0	15.6	13.2	10.2	9.5	8.5	5.2	3.3	17.6	11.6	5.9
	(.5)	(1.5)	(1.4)	(2.1)	(2.0)	(2.0)	(2.1)	(1.8)	(1.2)	(1.0)	(4.7)	(1.9)	(10.4)
Older than 35	8.8	8.8	8.7	8.7	7.7	6.5	9.4	9.4	8.8	14.3	5.5	12.6	6.6
	(.5)	(1.4)	(1.5)	(1.6)	(1.6)	(1.6)	(2.1)	(1.9)	(1.6)	(2.0)	(2.8)	(2.0)	(10.9)
Percentage of children with parents who were not high school graduates													
Mothers	16.8	21.1	15.4	30.5	21.8	16.3	13.3	15.3	8.7	6.4	16.0	18.2	3.7
	(.6)	(1.8)	(1.8)	(2.3)	(2.2)	(2.1)	(2.2)	(2.0)	(1.5)	(1.3)	(3.9)	(2.2)	(6.5)
Fathers	15.1	19.7	16.3	27.2	18.5	18.9	14.6	12.3	10.9	6.4	15.4	17.6	9.7
	(.6)	(2.2)	(2.1)	(3.0)	(2.6)	(2.8)	(2.8)	(2.4)	(1.8)	(1.5)	(5.1)	(2.7)	(14.5)
Percentage of children with parents who were not employed													
Mothers	31.6	29.5	26.4	40.1	32.0	34.5	34.5	34.3	26.8	35.2	38.3	39.5	31.7
	(.8)	(2.0)	(2.1)	(2.5)	(2.4)	(2.8)	(3.0)	(2.7)	(2.3)	(2.6)	(5.2)	(2.8)	(16.2)
Fathers	6.3	7.8	5.8	14.0	10.1	6. 2	6.5	9.1	6.9	6.2	8.7	12.5	1. 9
	(.4)	(1.5)	(1.3)	(2.3)	(2.0)	(1.7)	(1.9)	(2.1)	(1.5)	(1.5)	(4.0)	(2.3)	(6.7)
Sample size: Mothers	9,177	938	765	723	691	923	736	889	855	1050	302	735	44
Fathers	7,053	622	573	427	406	633	495	613	684	841	188	512	25

Standard errors are in parentheses.

(a) Computed using data from the National Household Education Survey, 1999.

racial/ethnic backgrounds differed somewhat (Exhibit 3-9). Students of color were more likely than white students to have parents with characteristics often associated with children being at risk. For example, more African American than white students were born to teenage mothers (15% vs. 7%; $p<.01$), had mothers who had not completed high school (26% vs. 12%; $p<.001$), and were unemployed (34% vs. 27%; $p<.05$).

Hispanic students did not differ from white students in terms of mother's age at birth, but considerably more Hispanic students had mothers and fathers who had not completed high school (44% vs. 10% of white students, $p<.001$), and had mothers who were not employed (45% vs. 30% of white students; $p<.001$).

These racial/ethnic patterns were not unique to parents of children with disabilities; they closely paralleled the patterns of parents in the general population. In fact, the only differences found between students with disabilities of different racial/ethnic groups and their counterparts in the general population were that more African American and fewer Hispanic students with disabilities had mothers who were employed ($p<.05$).

Exhibit 3-9
PARENTS' CHARACTERISTICS, BY RACE/ETHNICITY

	Students with Disabilities				General Population of Students			
	White	African American	Hispanic	Other	White	African American	Hispanic	Other
Percentage of mothers whose age at child's birth was:								
Younger than 20	7.3	15.0	12.1	6.3	6.9	15.0	16.0	6.5
	(.9)	(2.4)	(2.7)	(4.1)	(.5)	(1.6)	(1.4)	(1.9)
Older than 35	8.8	6.9	9.8	16.5	9.2	6.8	7.8	12.8
	(1.0)	(1.7)	(2.5)	(6.3)	(.6)	(1.1)	(1.0)	(2.5)
Percentage of children with parents who were not high school graduates								
Mothers	11.8	26.1	42.0	23.0	9.9	21.2	43.5	13.1
	(1.0)	(2.7)	(3.7)	(6.5)	(.6)	(1.8)	(1.8)	(2.5)
Fathers	12.6	19.1	46.4	16.3	10.2	15.9	43.7	9.1
	(1.2)	(3.8)	(4.6)	(6.6)	(.7)	(2.3)	(2.2)	(2.3)
Percentage of children with parents who were not employed								
Mothers	27.1	34.5	36.1	30.6	30.3	25.4	44.6	30.0
	(1.4)	(2.9)	(3.6)	(7.1)	(.9)	(2.0)	(1.8)	(3.4)
Fathers	6.4	15.6	8.5	6.1	4.9	12.6	9.7	6.7
	(.8)	(3.5)	(2.6)	(4.2)	(.5)	(2.1)	(1.3)	(2.0)
Sample size	4,339	684	738	224	4,751	617	1,295	390

Standard errors are in parentheses.

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Economic Status

Economic status is an important contributor to a range of desired school and postschool educational outcomes. Being from a low-income household is linked to a greater likelihood of poor health and development in young children, poor performance in school, and a variety of poor outcomes in adolescence (Duncan & Brooks-Gunn, 1997; Lewit, Terman, & Behrman, 1997). Furthermore, poverty has been a persistent problem in American society, even after economic booms in the 1980s and 1990s. Added to the challenges associated with disability, the detrimental effects of poverty can reduce significantly the chances of success for children with disabilities. Here, we examine several indicators of the economic status of the households in which children with disabilities were growing up: total household income in 1999; whether households were below the poverty threshold; experience with selected benefit programs; and whether households had access to important resources, including health insurance, adequate transportation, and steady telephone service.

Household Income

SEELS findings confirm the results of earlier research on students with disabilities (Marder & Cox, 1991), which found that they may be disproportionately exposed to the potentially negative effects of poverty (Exhibit 3-10). More than one-third (36%) of students with disabilities lived in households with incomes of $25,000 or less, compared with 24% of children in the general population ($p<.001$). Almost twice as many children in the general population lived in households with incomes of more than $75,000 as children with disabilities.

The adequacy of an income to meet the needs of a household depends in part on the number of people whose needs the income must meet. The federal government has identified income thresholds for households of various sizes below which a household is considered in poverty. Because parents of students with disabilities reported their household income in categories (e.g., $25,001 to $50,000), rather than reporting a specific dollar value, we can only estimate poverty rates. Nonetheless, that estimate is entirely consistent with the income figures reported above; students with disabilities were significantly more likely to be living in poverty than those in the general population. Almost one in four students with disabilities (24%) were living in poverty in 2000, compared with 16% of students in the general population ($p<.001$; U.S. Bureau of the Census, 2001). Almost two-thirds of students with disabilities (64%) in households with incomes below $25,000 were in poverty, as were almost 2% students in households with incomes of $25,000 to $50,000.

Exhibit 3-10
HOUSEHOLD INCOME OF STUDENTS WITH DISABILITIES AND STUDENTS IN THE GENERAL POPULATION

	Students with Disabilities[a]	Students in the General Population[b]
Percentage reporting household income of:		
Less than $15,000	19.9 (1.0)	13.0
$15,000 to $24,999	16.0 (1.0)	11.4
$25,000 to $50,000	31.9 (1.2)	28.7
$50,001 to $75,000	19.0 (1.0)	22.7
More than $75,000	13.3 (.9)	24.2
Percentage living in poverty	23.6 (1.1)	16.0
Sample size:	8,083	

Standard errors are in parentheses.
(a) Income in 1999 of households of children with disabilities ages 6 to 13
(b) Income in 1997 of households with children ages 6 to 17. U.S. Bureau of the Census.

Experience with Benefit Programs

Like other Western countries, the United States has a variety of benefit programs to assist eligible low-income individuals and families meet their immediate needs, as well as move toward independence. Among the most important programs for low-income families are Temporary Assistance for Needy Families (TANF) and Food Stamps.[10]

TANF is a monthly cash assistance program for poor families with children under age 18 that emerged from The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996. TANF has a 4-year lifetime limit on cash assistance. In addition, work is a major component of TANF; adult recipients with children older than 1 year of age are required to participate in a work activity. The goal of TANF is to help recipients gain work experience in order to find jobs and become self-sufficient.

With a goal of ameliorating hunger and malnutrition, the Food Stamps Program provides low-income households with cash-like benefits that can be used to purchase food in authorized retail stores. The program was established by the 1964 Federal Food Stamp Act, and by 1974, the program covered the entire nation, becoming the most significant food plan in U.S. history. In 1996, PRWORA resulted in a substantial scaling-back of the program, although in subsequent legislation, Congress restored some benefits to select populations and also gave states the option to restore benefits to individuals who did not meet the eligibility criteria.

The Food Stamp Program currently provides benefits to millions of families with children and to those with disabilities. More than half (54%) of all Food Stamp households in 2000 included children ages 17 and under, and households with children received 87% of all food stamps. More than one-quarter (27%) of participating households included at least one disabled person. To qualify for benefits, households must have gross incomes below 130% of the poverty line. The exact value of Food Stamps received depends on the household's per capita income; the monthly maximum is $434 for a family of four.

The Supplemental Security Income program (SSI) also can be an important source of support for low-income individuals with disabilities. SSI is a federal program that provides monthly

[10] Another important support program for low-income families is Medicaid, which is government-provided health insurance. Participation in health insurance is discussed in a subsequent section of this chapter.

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benefits to people with disabilities who have financial need. Federal law states that a child will be considered eligible for SSI because of a disability if he or she has a physical or mental condition (or a combination of conditions) that results in "marked and severe functional limitations." The condition must last or be expected to last at least 12 months or be expected to result in a child's death. In addition, a child must not be working at a job that is considered "substantial work." To determine whether *children* with disabilities meet financial criteria, SSI considers parents' income and assets.

Below, we describe parents' reports of the current participation of their households or children in TANF, Food Stamps, and SSI. We the describe families' experiences with leaving TANF and SSI in the preceding 2 years, a time in which reforms in both programs were reducing program participation. Differences in program participation for households of children with different primary disabilities and those who differ in demographic characteristics also are discussed.

Current Benefit Program Participation

At the time of the SEELS parent survey, 8% of students with disabilities were in households that were receiving TANF (Exhibit 3-11), and approximately 16% were in households that were receiving Food Stamps. These participation rates were not significantly different from the 9% and 14% of all U.S. families receiving TANF and Food Stamps, respectively, despite the fact that the households of students with disabilities were more likely to be poor.[11] Approximately 55% of TANF recipients among households with children with disabilities were the mother, father, or guardian of that student. In more than 1 in 4 families, both the parent and another person in the household were the TANF recipients. A household member other than the parent was the recipient in fewer than 20% of families. About one in eight children with disabilities (12%) were receiving SSI at the time parents were surveyed.

Overall, one in four of children with disabilities were in households that were participating in at least one of these benefit programs at the time parents were interviewed. Sixteen percent were in households participating in one benefit program, 7% in two programs, and fewer than 2% in all three programs.

Changes over Time in TANF and SSI Participation

SEELS investigated the extent to which students and families who received TANF and/or SSI at some time in the preceding 2 years (1998 to 2000) no longer were receiving benefits when parents were interviewed in 2000.

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[11] SEELS respondents reported current participation in 2000, whereas NHES respondents reported participation in the year preceding the 1999 interview. Thus, both the year and the time period of the report could be expected to produce a difference between the two groups.

Exhibit 3-11
BENEFIT PROGRAM PARTICIPATION OF HOUSEHOLD OF STUDENTS WITH DISABILITIES AND THOSE IN THE GENERAL POPULATION

	Households of Students Receiving Special Education	Households of Students in the General Population
	Receiving Currently (2000)	Received In Last Year (1998-99)[a]
Percentage receiving		
TANF	8.0 (.7)	8.6[a]
Food Stamps	15.6 (.9)	14.2[a]
SSI	12.1 (.8)	1.2[b]
Benefits from any of these programs	25.0 (1.0)	NA
Sample size	9,469	9,584

Standard errors are in parentheses.

[a] Computed using data from the National Household Education Survey, 1999.

[b] Department of Health and Human Services (2001b).

Nationally, the number of people receiving cash assistance from TANF dropped from 4.1 to 2.5 million families over the 3-year period ending December 1999. Although there are a number of possible explanations for the caseload decline, it seems safe to conclude that new policies, combined with the exceptionally strong economy, had substantially increased work among low-income single mothers and decreased their reliance on federal benefits. Consistent with national findings, 6% of students with disabilities were in households that had received TANF benefits at some time in the 2-year period of 1998 to 2000 no longer were receiving benefits at the time of the interview in 2000. A strong economy appeared to be a significant reason for the decline in program participation; nearly 59% of previous TANF recipients attributed their independence from TANF to finding employment; 97% of these found employment of their own volition and 2% because they knew their benefits were ending. Only about 4% of previous TANF recipients cited marriage as the reason for no longer receiving TANF benefits.

A decline in the number of children served through SSI also was evident in the 1990s. SSI's caseload of children spiked in the mid-1990s, peaking at 955,000 children in 1995, 1.4% of children, and then declined to 847,000 children in 1999, 1.2% of children (U.S. Department of Health and Human Services, 2001b). Despite this national decline, only 1% of children with disabilities in the SEELS age range who had received benefits in the 2 years preceding the interview were not receiving benefits in 2000. Of the small percentage who had lost their SSI benefits, more than half (54%) were reported by parents no longer to meet eligibility criteria for disability; 4 of 10 reported that their incomes had exceeded eligibility limits, and 7% cited both reasons.

Children's Health Insurance Coverage

Research has demonstrated that the likelihood of receiving medical care for such childhood ailments as acute ear aches, recurring ear infections, sore throats, and asthma is markedly reduced for children who are uninsured (Kaiser Commission on Medicaid and the Uninsured, 2000). Given the risk of generally poorer health among children with disabilities relative to other children, and the significant health care needs of children with particular kinds of disabilities, health insurance may be a critically important support for children with disabilities.

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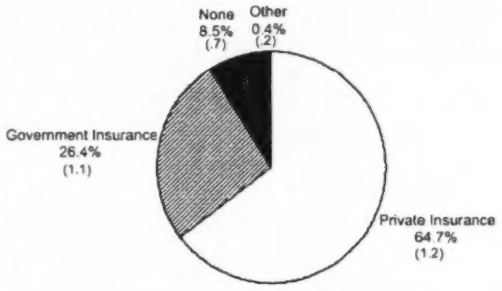
Exhibit 3-12
HEALTH INSURANCE COVERAGE FOR STUDENTS WITH DISABILITIES



Sample size = 8,643
Standard errors are in parentheses.

Almost 92% of children with disabilities had medical insurance (Exhibit 3-12). This rate is marginally higher than the rate for children ages 6 to 11 in the general population (87%, FIFCFS, 2001). However, the form of insurance differed between the two groups. Whereas 74% of children in the general population had private health insurance, significantly fewer children with disabilities did so (65%, $p<.001$); however, they exceeded children in the general population in their participation in government health insurance, such as Medicaid and Medicare (26% vs. 19%, $p<.001$). These differences are consistent with the higher rate of low-income children among those with disabilities, a factor that would qualify them more readily (than children in general) for means-tested government insurance than children in general.

Exhibit 3-13
MANAGED CARE AMONG CHILDREN WITH DISABILITIES

Percentage of children with managed care among:	
All children (n = 8,492)	50.0 (1.3)
Insured children (n = 8,006)	54.6 (1.3)
Children with private health insurance (n=5,269)	60.3 (1.6)
Children with government health insurance (n=2,696)	40.8 (1.6)

Standard errors are in parentheses.

Half of all students with disabilities (Exhibit 3-13) and 55% of those who were insured had managed health care provided by a health maintenance organization (HMO). Managed care was a more common form of insurance among children with private health insurance (60%) than those with government insurance (41%, $p<.001$).

Children in poor health were about equally likely as those in generally excellent health to have health insurance (92% vs. 99%) and to have managed health care (52% vs. 51%). Almost all of the children with chronic health conditions had insurance (e.g., 99% of those with spina bifida and 84% of those with cerebral palsy).

Although we did not ask parents to report on their perceptions of the adequacy of their children's health insurance, we did ask them to report the incidence of two potential issues with insurance: the need to change insurance or buy additional insurance because of children's special needs, and refusals by insurance companies to cover services or items related to children's disabilities (Exhibit 3-14).

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Very few children (3%) had parents who reported that they had had to change insurance plans or buy extra insurance because of their children's disabilities; 13% of children had parents who had encountered refusals by insurance companies to cover services or items related to children's disabilities. Such refusals were most common for requests for diagnostic services and for therapies, such as speech or physical therapy (4%).

Those with private and government insurance were equally likely to have needed to change insurance plans or buy extra insurance because of children's disabilities, as were those with managed care and those with nonmanaged care. However, there were significant differences in the frequency of insurance companies refusing to pay for special health care services or items for children. Refusals to pay were significantly more common among those with private health insurance, compared with government-insured children (15% vs. 10%, $p<.05$) and among those with managed care vs. those with other insurance (16% vs. 10%, $p<.001$). The difference in the rates of refusals between private- and government-insured children resulted largely from higher rates of refusals by private insurers to pay for diagnostic services (5% vs. 1%, $p<.001$) and therapies, such as occupational, physical, or speech therapy (5% vs. 2%, $p<.001$). Research has demonstrated that people with private health insurance and those with managed care experience increased barriers to accessing the services of medical specialists relative to those with nonmanaged care (Reschovsky, Kemper, Tu, Lake, & Wong, 2000). Nevertheless, reported rates of insurers refusing to pay for services from specialists were not significantly higher among those with private insurance or managed care.

Exhibit 3-14
PARENTS' REPORTS OF PROBLEMS WITH HEALTH INSURANCE

	Percentage	Standard Error
Percentage of insured children whose families reported:		
Having to change insurance plans or buy extra insurance in the past 2 years because of child's special needs	2.6	.4
Having disability-related health care that insurance would not cover	13.4	.9
Insurance would not cover:		
Diagnostic services	4.1	.5
Medications	1.6	.3
Mental health services	1.3	.3
Services from specialists	1.2	.3
Special equipment/devices	3.0	.4
Surgery	.4	.2
Standard therapies (e.g., occupational, physical, or speech therapy)	4.0	.5
Other services/items	.8	.2
Sample size	8,082	

Availability of Adequate Transportation and Telephone Service

The financial well-being of families is reflected not only in the actual income of their households, but also in the extent to which they are able to procure other kinds of goods and services that help them function in the community and workplace. Two particularly relevant kinds of services for families with young children, perhaps especially those with disabilities, are transportation and telephone service. Adequate transportation is necessary for families to access many important activities, including employment, education, health care, and other kinds of services. Telephone service also facilitates communication with services providers and school staff. SEELS parents were asked how well the transportation available to them met the needs of their family and whether they had been without telephone services for more than a few days at any time in the preceding 6 months.

Overall, 71% of students had parents who said that available transportation met their needs "very well," whereas another 20% had transportation that met their needs "well." Ten percent of students had parents who described available transportation as meeting their families' needs "not very well" or "not at all well." Almost 1 in 10 children lived in households with parents who reported that they had been without telephone service for more than a few days at some point in the preceding 6 months.

A large majority of students (84%) lived in households that were reported to have both adequate transportation and steady telephone service, 13% had a service need of one kind or the other, and 3% of households were reported to have both transportation that did not meet their needs and telephone service that had been interrupted in the preceding 6 months.

Relationship Among Economic Status Indicators

Although each of the measures described above depicts one aspect of the economic status of children with disabilities, it is important to recognize their interrelationships. Measures of income, benefit program participation, and other household resources cluster together as

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indicators of the broad concept of economic status; children who were economically disadvantaged generally experienced these several aspects of poverty simultaneously.

Exhibit 3-15 shows the relationships of benefit program participation and household resources to the income of children's households. As expected, all indicators of economic hardship were significantly more prevalent among those in low-income households than among

Exhibit 3-15
BENEFIT PROGRAM PARTICIPATION AND HOUSEHOLD RESOURCES, BY HOUSEHOLD INCOME

	Household Income			Household in Poverty[a]	
	$25,000 and Less	$25,001 to $50,000	More than $50,000	Yes	No
Percentage in households that were receiving:					
TANF	17.0	3.3	.7	21.0	2.8
	(1.5)	(.8)	(.4)	(2.2)	(.5)
Food Stamps	35.4	3.9	.2	47.8	3.2
	(1.9)	(.9)	(.2)	(2.7)	(.5)
SSI	23.6	6.3	2.4	22.8	6.4
	(1.7)	(1.1)	(.7)	(2.3)	(.7)
Benefits from any of these programs	61.5	11.1	34.	62.4	10.0
	(2.0)	(1.4)	(.8)	(2.6)	(.9)
Percentage with no health insurance coverage	12.8	8.9	2.8	88.0	92.7
	(1.5)	(1.3)	(.8)	(1.8)	(.8)
Lack of adequate transportation or steady telephone service or both	31.7	11.8	1.4	38.3	8.4
	(2.0)	(1.5)	(.5)	(2.6)	(.8)
Sample size	2,952	2,452	2,759	6,209	1,871

Standard errors are in parentheses.

[a] Poverty status reflects income in combination with household size.

those with higher incomes. For example, nationwide, 92% of Food Stamp households have incomes below the poverty line. Thus, it is not surprising that households with children with disabilities in poverty were much more likely to be receiving Food Stamps (48%) than families who were not in poverty (3%, $p<.001$). In addition, children in households with incomes below $25,000 were significantly less likely to be insured than children from wealthier households (87% vs. 97% with incomes between $25,000 and $50,000, $p<.001$) and to have government health insurance (55% vs. 3%, $p<.001$).

The fact that any households with incomes of more than $50,000 experienced these aspects of economic disadvantage generally results from the poverty thresholds of households of different sizes. The last two columns of Exhibit 3-15 show that small percentages (10%) of households who were not in poverty were receiving TANF, Food Stamp, or SSI benefits for children, compared with 62% of those who were poor ($p<.001$).

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Disability Differences in Economic Status

In this section, we address the differences in household characteristics of children with different primary disabilities (Exhibit 3-16). Across the range of indicators of economic status, students classified as emotionally disturbed or mentally retarded appear to have faced the most difficult economic challenges; they were the most likely to live in poverty (36% and 31%, respectively); to receive Food Stamps (22% and 23%); to have no health insurance (10% and 9%); and to report having inadequate transportation, unsteady telephone service, or both (22% and 24%). In all cases, the differences were significant between children with emotional disturbances or mental retardation and those with autism OR other health impairments, whose pattern of economic indicators was among the most positive of the groups.

The one exception to this pattern involved participation in SSI; children with emotional disturbances, learning disabilities, and speech and other health impairments were the least likely to participate in this program (5% to 19%). In contrast, SSI served significantly more children with deaf-blindness, mental retardation, multiple disabilities, OR orthopedic impairments (33% to 54%).

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Exhibit 3-16
HOUSEHOLD ECONOMIC STATUS, BY DISABILITY CATEGORY

Percentage with annual household income of:	General Population	Learning Disability	Speech/ Language Impairment	Mental Retarda-tion	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
$20,000 or less	NA	30.2	19.5	42.5	40.1	25.8	22.1	24.6	20.2	16.3	25.8	34.8	53.3
		(2.2)	(2.0)	(2.6)	(2.5)	(2.6)	(2.7)	(2.6)	(2.1)	(2.1)	(4.8)	(2.8)	(18.9)
More than $50,000	NA	31.3	40.8	19.2	21.2	37.6	39.3	43.7	41.9	49.0	37.7	28.6	25.0
		(2.2)	(2.5)	(2.6)	(2.1)	(2.6)	(2.7)	(2.5)	(1.8)	(1.8)	(4.8)	(2.6)	(17.2)
Household in poverty	16.0[a]	25.8	18.7	35.9	31.0	21.7	18.2	21.2	14.2	11.5	25.4	28.2	26.4
		(2.1)	(2.0)	(2.5)	(2.4)	(2.5)	(2.6)	((2.5)	(1.8)	(1.8)	(4.9)	(2.6)	(16.9)
Percentage currently receiving:													
TANF	8.6[a]	9.4	4.9	11.0	15.7	4.6	4.5	7.0	4.1	3.8	12.5	11.0	10.2
		(1.2)	(1.0)	(1.5)	(1.7)	(1.2)	(1.3)	(1.4)	(1.0)	(1.0)	(3.2)	(1.7)	(10.2)
Food stamps	14.2[a]	18.5	10.7	21.6	23.3	12.8	10.5	12.0	8.6	7.4	17.5	16.4	13.7
		(1.7)	(1.5)	(1.9)	(2.0)	(1.8)	(1.9)	(1.7)	(1.4)	(1.4)	(3.7)	(2.0)	(11.6)
SSI	1.2[b]	8.5	5.2	38.4	18.9	24.1	28.7	31.0	11.9	23.0	24.8	33.1	54.6
		(1.2)	(1.1)	(2.3)	(1.8)	(2.3)	(2.8)	(2.5)	(1.6)	(2.2)	(4.2)	(2.6)	(17.3)
Any of these benefits	NA	24.9	15.7	48.2	37.6	30.4	33.6	34.5	18.9	24.4	36.4	42.6	57.5
		(1.8)	(1.7)	(2.4)	(2.3)	(2.5)	(2.9)	(2.6)	(2.0)	(2.3)	(4.7)	(2.7)	(17.1)
Percentage with health insurance coverage:													
None	13.0[c]	8.9	8.8	9.4	10.0	5.4	6.2	5.8	4.0	2.8	7.7	3.3	1.1
		(1.3)	(1.4)	(1.5)	(1.5)	(1.4)	(1.6)	(1.4)	(1.0)	(.9)	(2.8)	(1.0)	(4.0)
Government insurance	NA	24.6	18.3	46.9	47.5	30.6	31.4	32.2	23.1	24.2	40.2	45.1	53.9
		(2.0)	(1.9)	(2.5)	(2.5)	(2.8)	(3.1)	(2.7)	(2.1)	(2.3)	(5.1)	(2.7)	(19.2)
Percentage with lack of adequate transportation or steady telephone service or both	NA	17.1	13.2	22.4	24.0	14.2	13.7	13.7	10.4	7.7	12.8	15.3	6.9
		(1.7)	(1.7)	(2.1)	(2.2)	(2.1)	(2.2)	(2.0)	(1.5)	(1.4)	(3.5)	(2.0)	(9.8)
Sample size: Benefit program participation	9,584	1,019	820	841	848	1,007	798	957	916	1,097	349	815	48
Transportation and telephone service	NA	849	709	726	720	857	696	826	912	1,077	307	806	40

Standard errors are in parentheses.

(a) Computed using data from the National Household Education Survey, 1999.
(b) Department of Health and Human Services, 2001b
(c) Federal Interagency Forum on Child and Family Statistics, 2001.

Students with different disabilities differed widely in the extent to which their parents reported problems with health insurance (Exhibit 3-17). Fewer than 2% of children with speech/language impairments or learning disabilities had parents who reported having to change insurance plans or buy extra insurance because of their children's special needs, and fewer than 10% had insurers who refused to pay for special health care services or items. Many more students with deaf-blindness, autism, or hearing or orthopedic impairments (9% to 32%) had parents who reported having to change their insurance coverage or buy additional insurance, and about one-third or more of them had encountered refusals by insurers to pay for services or items related to their children's disabilities. For students with learning disabilities, mental retardation, or other health impairments, diagnostic services were most often refused by insurers (ranging from 3% to 7%). Mental health services were most frequently refused for students with emotional disturbances (6%), whereas refusing to pay for special equipment was the most frequently encountered refusal for children with visual or hearing impairments (including those with deaf-blindness) and those with multiple disabilities (ranging from 14% to 33%). Therapies were the services most often refused for children with speech and orthopedic impairments, autism, OR traumatic brain injuries (ranging from 4% to 20%).

Exhibit 3-17
PROBLEMS WITH HEALTH INSURANCE, BY DISABILITY CATEGORY

	Percentage Reported Having:		
	To Change Insurance Plans or Buy Extra Insurance	Insurer Refuse to Pay for Services/ Items	Sample Size
Learning disability	1.6 (.8)	.9 (1.3)	868
Speech/language impairment	.9 (.5)	9.8 (1.5)	721
Mental retardation	3.8 (1.0)	12.3 (1.7)	737
Emotional disturbance	6.8 (1.3)	18.7 (2.0)	735
Hearing impairment	8.7 (1.7)	40.3 (3.0)	871
Visual impairment	6.8 (1.7)	25.9 (2.9)	705
Orthopedic impairment	8.6 (1.6)	32.3 (2.7)	845
Other health impairment	5.0 (1.1)	26.6 (2.2)	913
Autism	11.6 (1.7)	39.8 (2.6)	1,081
Traumatic brain injury	6.6 (2.6)	23.4 (4.4)	313
Multiple disabilities	4.3 (1.1)	30.6 (2.5)	826
Deaf-blindness	31.7 (17.9)	37.4 (19.4)	41

Standard errors are in parentheses.

Demographic Differences in Economic Status

There were no significant differences in household economic status between children of different ages or between boys and girls with disabilities. However, when we look at students' race/ethnicity significant differences are apparent.

African American and Hispanic students were significantly more likely than others to experience all aspects of poverty (Exhibit 3-18). About half of African American students (51%) lived in poverty, as did 41% of Hispanic students, significantly more than the 14% of white students ($p<.001$). Also, households of Hispanic and African American students were more likely than those of white students to participate in government benefit programs (51% and 32%

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Exhibit 3-18
HOUSEHOLD ECONOMIC STATUS, BY RACE/ETHNICITY

	Race/Ethnicity				
	White	African American	Hispanic	Asian/ Pacific Islander	American Indian/Alaska Native
Percentage with annual household income of:					
$20,000 or less	17.3 (1.2)	53.4 (3.1)	41.1 (4.0)	13.9 (8.8)	36.4 (18.0)
More than $50,000	44.0 (1.6)	11.8 (2.0)	15.9 (2.9)	43.0 (12.5)	42.2 (18.5)
Percentage of household in poverty	14.1 (1.0)	51.1 (3.1)	40.5 (4.0)	9.4 (7.6)	20.7 (15.3)
Percentage who were currently receiving benefits from:					
TANF	4.5 (.6)	15.4 (2.0)	12.8 (2.4)	1.7 (2.8)	15.4 (11.2)
Food Stamps	8.6 (.8)	31.8 (2.6)	25.2 (3.2)	3.6 (4.0)	23.3 (13.0)
SSI	8.1 (.8)	25.2 (2.4)	12.3 (2.4)	8.7 (6.2)	14.3 (10.8)
Any of these programs	15.3 (1.0)	50.8 (2.8)	32.1 (3.4)	9.9 (6.5)	37.3 (15.0)
Percentage with health insurance coverage:					
None	6.0 (.7)	8.8 (1.7)	19.0 (3.0)	10.1 (7.3)	.4 (2.3)
Government insurance	18.1 (1.2)	48.6 (2.9)	33.5 (3.6)	15.5 (8.8)	30.0 (17.4)
Percentage with lack of adequate transportation or steady telephone service or both	10.1 (.9)	29.6 (2.7)	22.8 (3.2)	8.5 (7.0)	16.5 (14.0)
Sample size: Benefit programs	5,973	2,000	1,197	200	61
Transportation and phone service	5,390	1,780	1,047	169	44

Standard errors are in parentheses.

vs. 15%, p<.001) and have inadequate transportation, unsteady telephone service, or both (30% and 23% vs. 10%, p<.001).

Although there was not a significant difference in the extent of health insurance coverage between white and African American students, Hispanic students were significantly less likely than these two groups to have health insurance (81% vs. 94% and 91%, p<.001) and were significantly less likely than African American students to participate in SSI, Food Stamps, or TANF (32% vs. 51%, p<.001). African American students were most likely to have government

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health insurance (49%). This latter rate was significantly higher than government insurance for either white or Hispanic students (18% and 34%, respectively; $p<.001$).

The observed relationship between income and ethnicity is complicated and is influenced by a number of other factors. For example, the discussion of household composition and parental characteristics showed that African American children were more likely than others to live in households with only one parent, and to live in households with another member who had a disability. These factors also were more prevalent among low-income households (Exhibit 3-19). For example, students from poorer households were less likely to be living with both parents.

Exhibit 3-19
HOUSEHOLD COMPOSITION AND PARENT CHARACTERISTICS, BY HOUSEHOLD INCOME

	Household Income		
	$25,000 and Less	$25,001 to $50,000	More than $50,000
Percentage of children living with both parents	47.8 (2.1)	76.8 (2.0)	90.8 (1.3)
Percentage living with a never-married parent	17.6 (1.6)	5.3 (.9)	1.2 (.5)
Average number of children in the household	2.8 (<.1)	2.7 (<.1)	2.6 (<.1)
Average number of adults in the household	1.7 (<.1)	2.0 (<.1)	2.1 (<.1)
Percentage reporting any other member of household had a disability	45.9 (2.2)	40.4 (2.3)	30.4 (2.2)
Percentage of mothers whose age at child's birth was			
Younger than 20	13.4 (1.6)	10.3 (1.5)	3.6 (.9)
Older than 35	7.4 (1.3)	6.8 (1.3)	12.2 (1.7)
Percentage of children with parents who were not high school graduates			
Mothers	34.8 (2.0)	12.1 (1.6)	3.8 (.9)
Fathers	41.1 (3.2)	16.0 (1.9)	5.7 (1.1)
Percentage of children with parents who were not employed			
Mothers	40.4 (2.1)	21.5 (2.0)	21.2 (1.9)
Fathers	18.2 (2.5)	4.3 (1.1)	3.3 (.9)
Mothers' sample size	2,956	2,451	2,759
Fathers' sample size	1,334	1,875	2,551

Illuminating the interaction of poverty, race/ethnicity, and disability—particularly for African American students—is important in understanding the disproportionate number of such students receiving special education relative to their proportion of the general student population. Their participation was particularly disproportionate in the categories of mental retardation, emotional disturbance, traumatic brain injury, and multiple disabilities. In these categories, African American children were between 27% and 35% of members, while being only 17% of the general student population. These same categories also contained the largest concentrations of low-income students, illustrating a link between poverty and minority status, particularly for African American children.

This raises the question of whether it is their poverty that results in African American children being overrepresented among those with disabilities, particularly some kinds of disabilities, or whether other systemic factors—such as the policies or practices of schools,

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exercised in the assessment and eligibility determination process for special education—resulted in disproportionate numbers of African American students being identified with the disabilities noted above. Studies of the general population suggest that it is not an "either-or" issue. They find that "[ethnic] group differences obscured interactions with age, economic status, and family structure. Across all ethnic/racial and age cohorts, rates of disability were higher among low-income households; above the low-income threshold, [ethnic] group differences were greatly attenuated" (Fujiura, Yamaki, & Czechowicz, 1998).

Exhibit 3-20 echoes these findings for students with disabilities. It presents the racial/ethnic distribution of children with disabilities in each of four household income groups, compared with the distribution in the general population at those income levels. If poverty were the sole or primary explanation for the difference between the general and special education student populations in their racial/ethnic distribution, we would find differences eliminated by looking within each income category; i.e., the percentage of very low-income African American students would be the same in the two populations, given that their income levels were the same.

However, differences between students with disabilities and students in the general population persisted, even within income strata. Among households with incomes of less than $20,000, almost 26% of students in the general population were African American. If income was the primary factor in the overrepresentation of African Americans among students with disabilities we would expect to see a similar percentage of them among students with disabilities, given that their incomes were the same. However, African American children were significantly overrepresented among very-low-income students with disabilities (34% vs. 26%, $p<.001$), but only among these students. Among students from households with incomes of $20,000 to $35,000, the overrepresentation of African American moderated substantially and was no longer statistically significant (20% vs. 16%). In the higher two income strata, the proportion of African American students with disabilities was marginally lower than their proportion of the general population.

The pattern for Hispanic students was quite different. In the three lowest income categories, the percentages of Hispanic students did not differ from the respective percentages for the general population. However, among students from households earning more than $50,000, the proportion of Hispanic students among those with disabilities was significantly lower than in the general population (6% vs. 11%, $p<.001$).

Exhibit 3-20
RACIAL/ETHNIC DISTRIBUTION OF STUDENTS WITH DISABILITIES AND STUDENTS IN THE GENERAL POPULATION, BY INCOME LEVEL

	Students with Disabilities	General Population of Students
Percentage of very low-income students (<$20,000) who were:		
White	41.3 (2.5)	57.7
African American	34.5 (2.4)	25.6
Hispanic	19.5 (2.0)	16.7
Sample size = 2,169		
Percentage of low-income students ($20,000 to $34,999) who were:		
White	59.4 (2.7)	68.5
African American	19.8 (2.2)	16.3
Hispanic	16.1 (2.0)	15.2
Sample size = 1,787		
Percentage of moderate-income ($35,000 to $50,000) students who were:		
White	73.9 (2.9)	74.2
African American	10.5 (2.0)	12.5
Hispanic	12.1 (2.1)	13.3
Sample size = 1,215		
Percentage of upper-income (more than $50,00) students who were:		
White	84.8 (1.6)	81.4
African American	6.1 (1.1)	7.9
Hispanic	6.1 (1.1)	10.7
Sample size = 2,980		

Standard errors are in parentheses.

The issues of poverty and race/ethnicity are made even more complex when we consider interactions with disability category (Exhibit 3-21). The pattern of disproportionality in some income groups did not apply to all disability categories. In fact, the racial/ethnic distributions of students with hearing, visual, and other health impairments were close to those for the general population for all income groups. In contrast, the overrepresentation of African American students in the very low-income category that was apparent for students with disabilities as a whole was most pronounced for students with mental retardation, traumatic brain injuries, and multiple disabilities. Between 40% and 48% of very low-income students with these disabilities were African American, compared with 26% of very-low-income students in the general student population ($p<.001$). For these categories, this pattern persisted at the next two income levels, unlike the population of students with disabilities as a whole. Even among students in these categories from households with incomes between $35,000 and $50,000, the proportion of African American students with disabilities was about twice as large as their proportion of the general student population. However, in the upper-income category, the proportion of African American students receiving special education was comparable to their proportion in the general population.

The proportion of very low-income Hispanic students did not differ for the populations of students with disabilities and students as a whole. Nonetheless, Hispanic students were significantly overrepresented among very-low-income students with learning disabilities and hearing and visual impairments. In contrast,

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Exhibit 3-21
RACIAL/ETHNIC DISTRIBUTION, BY INCOME LEVEL AND DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retarda-tion	Emotional Disturb-ance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities
Percentage of very low-income (<$20,000) students who were:											
White	41.2	40.0	38.9	45.1	41.4	37.2	39.4	56.2	38.8	41.1	34.9
	(4.4)	(5.7)	(4.0)	(4.2)	(5.0)	(5.6)	(5.6)	(5.8)	(5.6)	(11.3)	(5.0)
African American	30.5	34.7	47.6	35.7	28.8	(30.3	34.3	25.9	40.0	45.8	42.3
	(4.2)	(5.6)	(4.1)	(4.0)	(4.6)	(5.4)	(5.5)	(5.1)	(5.7)	(11.5)	(5.2)
Hispanic	24.4	17.3	10.7	14.6	27.2	28.7	24.1	14.6	16.4	8.5	20.6
	(3.9)	(4.4)	(2.5)	(3.0)	(4.5)	(5.3)	(4.9)	(4.1)	(4.3)	(6.4)	(4.2)
Sample size	226	132	283	268	232	182	199	167	167	76	222
Percentage of low-income ($20,000 to $34,999) students who were:											
White	61.4	56.1	58.0	62.7	65.9	67.1	59.5	71.1	55.9	48.9	48.7
	(4.9)	(5.4)	(5.0)	(4.9)	(6.5)	(6.8)	(7.2)	(5.3)	(6.0)	(10.5)	(5.7)
African American	17.7	17.6	31.7	23.7	9.7	13.7	19.1	17.2	22.2	34.1	35.7
	(3.9)	(4.2)	(4.7)	(4.3)	(4.1)	(4.9)	(5.8)	(4.4)	(5.0)	(9.9)	(5.5)
Hispanic	15.5	21.0	6.4	11.3	19.4	16.7	19.6	11.7	16.9	13.9	14.3
	(3.7)	(4.4)	(2.5)	(3.2)	(5.4)	(5.4)	(5.9)	(3.7)	(4.5)	(7.2)	(4.0)
Sample size	179	154	178	175	186	162	158	165	181	63	178
Percentage of middle-income ($35,000 to $50,000) students who were:											
White	76.3	71.9	65.8	71.0	80.2	70.2	71.4	82.0	71.9	62.3	65.8
	(4.7)	(5.5)	(7.6)	(6.3)	(7.0)	(7.2)	(7.1)	(4.9)	(6.3)	(10.2)	(7.7)
African American	9.1	7.8	22.6	19.7	11.8	15.4	14.2	10.1	12.9	26.5	25.5
	(3.2)	(3.3)	(6.7)	(5.5)	(5.6)	(5.7)	(5.5)	(3.8)	(4.7)	(9.3)	(7.1)
Hispanic	11.2	16.2	8.8	8.4	4.8	6.4	12.0	5.3	9.2	6.0	6.8
	(3.5)	(4.5)	(4.5)	(3.8)	(3.7)	(3.9)	(5.1	(2.9)	(4.0)	(5.0)	(4.1)
Sample size	146	119	74	96	117	92	95	148	181	51	93
Percentage of upper-income (> $50,000) students who were:											
White	87.1	84.4	81.6	74.5	81.7	76.4	83.6	86.6	80.4	88.7	79.0
	(2.7)	(2.8)	(4.6)	(4.6)	(3.7)	(4.7)	(3.2)	(2.7)	(3.4)	(6.3)	(4.1)
African American	3.9	5.8	11.6	16.7	6.3	12.6	6.1	8.3	6.2	6.8	13.2
	(1.6)	(1.8)	(3.8)	(4.0)	(2.3)	(3.7)	(2.1)	(2.2)	(2.0)	(5.0)	(3.4)
Hispanic	6.3	6.3	5.7	6.2	4.9	6.3	7.3	3.1	6.8	3.7	5.1
	(2.0)	(1.9)	(2.8)	(2.6)	(2.1)	(2.7)	(2.3)	(1.4)	(2.2)	(3.8)	(2.2)
Sample size	268	296	134	161	311	243	363	374	485	93	239

There were too few deaf-blind students in each income category to report separately. Standard errors are in parentheses.

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Hispanic students were significantly underrepresented among upper-income students in virtually every disability category.

The interactions of income, race/ethnicity, and disability are more complex than can be thoroughly explained here. However, poverty appears to play an important role in understanding the participation of students with disabilities in special education. Very low incomes appear to be associated with overrepresentation of African American students, particularly among students with mental retardation, traumatic brain injuries, and autism. Hispanic students, too, were overrepresented among very-low (household)income students in some disability categories. In contrast, at incomes of $50,000 or more, they were underrepresented when compared with students in the general population, regardless of disability category.

It appears that more than income was contributing to the disproportional participation of students of color in special education. These findings suggest that other factors in the lives of very low-income African American students and upper-income Hispanic students are important in explaining their disproportional participation in special education. Future SEELS analyses will explore potential contributing factors other than income.

4. THE CHILDREN WE SERVE

By Mary Wagner and Jose Blackorby

This report has attempted to create a solid foundation for interpreting future results emerging from SEELS by painting a demographic profile of elementary and middle school students who were receiving special education and their households. We have documented students' individual and household characteristics for students with disabilities as a whole and, importantly, for those who differed in primary disability classification, age, gender, economic status, and race/ethnicity. In doing so, important insights have emerged regarding each of those distinguishing features of students, as summarized below.

Students with disabilities made up 11% of all students between the ages of 6 and 13. Although they included students with 12 different primary disability classifications, three-fourths were classified as having either learning disabilities or speech/language impairments as their primary disabilities. Another 9% of students were classified with mental retardation, 6% with emotional disturbances, and 5% with other health impairments. Students in every other disability classification made up fewer than 2% of all students with disabilities.

Although SEELS represents students who were 6 to 13 years old when data were collected, most students were in the 8- to 11-year-old age range, for the group as a whole and for each disability category. The younger age cohorts had large proportions of students with speech/language impairments, whereas learning disabilities and emotional disturbances were increasingly prominent among older students.

Two-thirds of students were boys; however, there was a considerable range in the percentage of boys across the disability categories. For example, boys were approximately 56% of students with hearing impairments, mental retardation, and visual impairments, though they were 80% or more of students with emotional disturbances and autism.

Representation of racial/ethnic groups among students receiving special education differed in some ways from the general population of students. Although white students were approximately the same percentage of both groups, African American students were somewhat overrepresented among students with disabilities. Hispanic students were somewhat underrepresented among students with disabilities relative to the general population. The differences in the two populations of elementary- and middle-school-age students are consistent with patterns found in infants and toddlers as well as high-school-age students.

The disproportionality of African Americans was greatest among students with mental retardation, emotional disturbances, traumatic brain injuries, and multiple disabilities. In these categories, the difference from the general population ranged from 10 to 18 percentage points. In contrast, the disproportionality of Hispanic students was not nearly so marked, reaching 9 percentage points fewer than the general population for other health impairments, the category with the greatest discrepancy.

More than 90% of students receiving special education spoke English in their homes most of the time, although 44% of Hispanic students spoke Spanish at home most of the time, and more

than 15% of students with hearing impairments or deaf-blindness communicated primarily through signing.

In considering the characteristics of the households in which elementary and middle school students with disabilities were growing up, we reported several similarities with the general population of students. The living arrangements of the large majority of students with disabilities closely resembled those of students in the general population, as did the average size of the households in which they lived. Parents of students with disabilities did not differ from parents in general in their ages or in the extent to which mothers were teenagers when they gave birth. Neither did they differ in their rates of employment.

However, there were important differences between the two populations. Of particular importance was the higher rate of poverty among the households of students with disabilities, relative to the general population. Further, despite the fact that parents were equally likely to be employed, households of students with disabilities were much more likely to have low- and very-low incomes. This apparent contradiction may result from the lower education levels among parents of students with disabilities, suggesting that the jobs they had may not have been high-skilled or high-paying, resulting in lower incomes, even among employed workers.

The higher rate of poverty among students with disabilities, and factors that often accompany poverty and put children at risk, were evident among children of color, especially African American children. They were significantly more likely to be poor and less likely to be living with two parents than other students with disabilities; their rate of foster care placement was more than three times that of white or Hispanic students with disabilities. Their households averaged fewer adults and more children, potentially contributing to their higher rate of poverty. Mothers of African American children with disabilities were significantly more likely than those of white children to have given birth as teens, not to have completed high school, and to be unemployed.

That these factors also characterized poor households and students with particular disabilities more than others demonstrates the complex intermingling of poverty, race/ethnicity, and some kinds of disabilities. For example, students with mental retardation had among the highest proportion of minority students, the highest proportion of low-income students, and the highest proportion of students with other risk factors, such as poorly educated parents.

In an attempt to begin to disentangle some of these influences, we focused on the interrelationships between poverty and the disproportional representation of African American and Hispanic students with disabilities. Income differences contributed to the disproportionate numbers of African American students receiving special education, relative to their proportion of the general population of students. When students with similar income levels were examined, the proportion of African American students among those with disabilities was very similar to that in the general population, with the exception of very-low-income students. African Americans were a significantly greater proportion of very-low-income students with disabilities than they were of very-low-income students in the general population. In contrast, Hispanic students were relatively equally represented among students with disabilities and the general population in the lower-income groups, but were significantly underrepresented among those with annual incomes greater than $50,000. This suggests that other factors in the households, environments, and/or schools of very-low-income African American students and upper-income

Hispanic students were contributing to the prevalence of disabilities among them, their need for or assignment to special education services, or both.

This overview of some fundamental demographics of the national population of students with disabilities that is represented by SEELS begins to lay a foundation for understanding the flow of findings that will be produced by the study in the coming years. Understanding the differences between students with disabilities and the general population, and between groups of students with varying primary disability types, is essential to interpreting other differences between those groups in their experiences and achievements, both in and outside of school.

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Appendix
SEELS SAMPLING, DATA COLLECTION, AND ANALYSIS PROCEDURES: WAVE 1 PARENT INTERVIEW/SURVEY

This appendix describes several aspects of the SEELS methodology relevant to the Wave 1 parent interview/survey, including:

- Sampling local education agencies (LEAs), schools, and students
- Parent interview and survey procedures and response rates
- Weighting of the parent interview/survey data
- Estimating and using standard errors
- Calculating statistical significance
- Measurement issues.

SEELS Sample Overview

The SEELS sample was constructed in two stages. A sample of 1,124 LEAs was selected randomly from the universe of approximately 14,000 LEAs that serve students receiving special education in at least one grade from first to seventh grade.[12] These districts and 77 state-supported special schools that serve primarily students with hearing and vision impairments and multiple disabilities were invited to participate in the study. A total of 245 LEAs and 32 special schools agreed to participate and provided rosters of students receiving special education in the designated age range, from which the student sample was selected.

The roster of all students receiving special education from each LEA[13] and special school was stratified by disability category. Students then were randomly selected from each disability category. Sampling fractions were calculated that would produce enough students in each category so that, in the final study year, we can generalize to most categories individually with an acceptable level of precision, accounting for attrition and for response rates to both the parent interview and the direct assessment. A total of 11,512 students were selected and eligible to participate in the SEELS parent interview/survey sample.

Details of the LEA and students samples are provided below.

The SEELS LEA Sample

Defining the Universe of LEAs

The SEELS sample includes only LEAs that have teachers, students, administrators, and operating schools—that is, "operating LEAs." It excludes such units as supervisory unions;

[12] The 1999 Quality Education Data, Inc. (QED) database was used to construct the sampling frame.

[13] LEAs were instructed to include on the roster any student for which they were administratively responsible, even if the student was not educated within the LEA (e.g., attended school sponsored by an education cooperative or was sent by the LEA to a private school). Despite these instructions, some LEAs may have underreported students served outside the LEA.

Bureau of Indian Affairs schools; public and private agencies, such as correctional facilities; LEAs from U.S. territories; and LEAs with 10 or fewer students in the SEELS age range, which would be unlikely to have students with disabilities.

The public school universe data file maintained by Quality Education Data (QED, 1998) was used to construct the sampling frame because it had more recent information than the alternative list maintained by the National Center for Education Statistics. Correcting for errors and duplications resulted in a master list of 13,426 LEAs that were expected to have at least one student receiving special education in the appropriate age range. These comprised the SEELS LEA sampling frame.

Stratification

The SEELS LEA sample was stratified to increase the precision of estimates by eliminating between-strata variance, to ensure that low-frequency types of LEAs (e.g., large urban districts) were adequately represented in the sample, to improve comparisons with the findings of other research, and to make SEELS responsive to concerns voiced in policy debate (e.g., differential effects of federal policies in particular regions, LEAs of different sizes). Three stratifying variables were used:

Region. This variable captures essential political differences, as well as subtle differences in the organization of schools, the economic conditions under which they operate, and the character of public concerns. The regional classification variable selected was used by the Department of Commerce, the Bureau of Economic Analysis, and the National Assessment of Educational Progress (categories include Northeast, Southeast, Midwest, and West).

LEA size (student enrollment). LEAs vary considerably by size, the most useful available measure of which is pupil enrollment. A host of organizational and contextual variables are associated with size that exert considerable potential influence over the operations and effects of special education and related programs. In addition, total enrollment serves as an initial proxy for the number of students receiving special education served by an LEA. The QED database provides enrollment data from which LEAs were sorted into four categories serving approximately equal numbers of students:

- **Very large** (estimated enrollment greater than 17,411 in grades 1 through 7)
- **Large** (estimated enrollment from 4,707 to 17,411 in grades 1 through 7)
- **Medium** (estimated enrollment from 1,548 to 4,706 in grades 1 through 7)
- **Small** (estimated enrollment between 10 and 1,547 in grades 1 through 7).

LEA/community wealth. As a measure of district wealth, the Orshansky index (the proportion of the student population living below the federal definition of poverty) is a well-accepted measure. The distribution of Orshansky index scores was organized into four categories of LEA/community wealth, each containing approximately 25% of the student population in grades 2 through 7:

- High (0% to 12% Orshansky)
- Medium (13% to 34% Orshansky)

- Low (35% to 45% Orshansky)
- Very low (over 45% Orshansky).

The three variables generate a 64-cell grid into which the universe of LEAs was arrayed.

LEA Sample Size

On the basis of an analysis of LEAs' estimated enrollment across LEA size, and estimated sampling fractions for each disability category, 297 LEAs (and as many state-sponsored special schools as would participate) was considered sufficient to generate the student sample. Taking into account the rate at which LEAs were expected to refuse to participate, a sample of 1,124 LEAs was invited to participate, from which 297 participating LEAs might be recruited. A total of 245 LEAs actually provided students for the sample. Although the sample of LEAs was somewhat smaller than anticipated, analyses of the characteristics of the LEA sample, in weighted and unweighted form, on the sampling variables of region, LEA size, and LEA wealth confirmed that that the weighted LEA sample closely resembled the LEA universe with respect to those variables, thus yielding an initial sample of LEAs that was representative of the nation.

In addition to ensuring that the LEA sample matched the universe of LEAs on variables used in the sampling, it was important to ascertain whether this stratified random sampling approach resulted in skewed distributions on relevant variables not included in the stratification scheme. Two variables from the QED database were chosen to compare the "fit" between the first-stage sample and the population: the LEA's metropolitan status and its proportion of minority students. Analyses revealed that the fit between the weighted LEA sample and the LEA universe was quite good.

The SEELS Student Sample

Determining the size of the SEELS student sample took into account the duration of the study, desired levels of precision, and assumptions regarding attrition and response rates. We calculated that approximately three students would need to be sampled for each one student who would have both a parent/guardian interview and a direct assessment in Wave 3 of SEELS data collection.

The SEELS sample design emphasizes the need to generate fairly precise estimates of proportions and ratios for students receiving special education as a whole and for each of the 12 special education disability categories. A level of precision for standard errors of 3.6% was considered sufficient for study purposes. Thus, by sampling 1,150 students per disability category (except for TBI and deaf-blind) in year 1, we estimated there would be 388 students per category with both a parent interview and a direct assessment in year 5. Assuming a 50% sampling efficiency (which will tend to be exceeded for almost all disability categories), the 388 students would achieve a standard error of estimate of 3.6%. In addition, all students with traumatic brain injury or with deaf-blindness in participating LEAs and special schools were selected

SRI contacted LEAs and special schools to obtain their agreement to participate in the study and request rosters of students receiving special education who were between the ages of 6 and

12 on September 1, 1999 and in at least first grade.[14] Requests for rosters specified that they contain the names and addresses of students receiving special education under the jurisdiction of the LEA, the disability category of each student, and the students' birthdates or ages. Some LEAs would provide only identification numbers for students, along with the corresponding birthdates and disability categories. When students were sampled in these LEAs, identification numbers of selected students were provided to the LEA, along with materials to mail to their parents/guardians (without revealing their identity to SRI).

After estimating the number of students receiving special education in the SEELS age range, the appropriate fraction of students in each category was selected randomly from each LEA. In addition, from the state-supported special schools, 100% of students with deaf-blindness, 50% of students with visual impairments, and 15% of those with hearing impairments were sampled. In cases in which more than one child in a family was included on a roster, only one child was eligible to be selected. LEAs and special schools were notified of the students selected and contact information for their parents/guardians was requested.

Parent Interview/Survey

The data source for the findings reported here was parents/guardians of SEELS sample members, who were interviewed by telephone or surveyed by mail. The SEELS conceptual framework holds that a child's nonschool experiences, such as extracurricular activities and friendships; historical information, such as age when disability was first identified; household characteristics, such as socioeconomic status; and a family's level and type of involvement in school-related areas are crucial to student outcomes. Parents/guardians are the most knowledgeable about these aspects of students' lives.

Matches of names, addresses, and telephone numbers of SEELS parents with existing national locator databases were conducted to maximize the completeness and accuracy of contact information and subsequent response rates. Letters were sent to parents to notify them that their child had been selected for SEELS and that we would be attempting to contact them by telephone. A toll-free telephone number was included in the letter for parents to call in to be interviewed if they could not be reached by telephone or to make an appointment for the interview at a convenient time. If the computer match of contact information, letters mailed to parents, and attempted telephone interviews revealed that neither a working telephone number or accurate address was available for a student, that student was considered ineligible for the study and removed from the sample. Students who had no adult in the household who spoke either English or Spanish were ineligible for the study.

Computer-assisted telephone interviewing (CATI) was used for parent interviews, which were conducted between from mid-July through early December 2000. Interviews were conducted in both English and Spanish.

All parents with an accurate address who could not be reached by telephone were mailed a self-administered questionnaire in a survey period that extended from December 2000 through March 2001. The questionnaire contained a subset of key items from the telephone interview. Exhibit A-1 reports the responses to the telephone and mail surveys.

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[14] Students who were designated as being in ungraded programs also were sampled if they met the age criteria.

Exhibit A-1
RESPONSE RATES FOR PARENT/GUARDIAN TELEPHONE INTERVIEW AND MAIL SURVEY

	Number	Percentage
Total eligible sample	11,512	100.00
Respondents		
Completed telephone interview	8,624	74.9
Partial telephone interview completed	132	1.2
Complete mail questionnaire	1,068	9.3
Total respondents	9,824	85.3
Nonrespondents		
Refused	455	4.0
Language barrier	156	1.4
No response	1,077	9.4

Overall, 93% of respondents reported that they were parents of sample members (biological, adoptive, or step), and almost 1% were foster parents. Four percent were relatives other than parents, 1% were nonrelative legal guardians, and fewer than 1% reported other relationships to sample members.

Weighting the Wave 1 Parent Data

In describing students with disabilities, we generally report percentages of students with a particular characteristic, status, or experience (e.g., the percentage of students living with a single parent or having moderate hearing loss). Percentages are weighted to represent the U.S. population of students receiving special education who were ages 6 to 12 on September 1, 1999 and in at least first grade. They are not percentages of the sample, but estimates for the population of students with disabilities in the SEELS age range as a whole and for students in each of the federal special education disability categories in use in 1999. In other words, rather than each student counting equally in calculating percentages, each student's value for a variable is weighted proportionate to the number of students like him/her nationally. Hence, for example, values for students with learning disabilities are weighted more heavily than those for students with visual impairments when discussing students as a group because of the significantly greater number of students with learning disabilities in the population as a whole.

Exhibit A-2 illustrates the concept of sample weighting and its effect on percentages or means that are calculated for students with disabilities as a group. In this example, 12 students are included in a sample, 1 from each of 12 disability groups, and each has a hypothetical value regarding whether that student participated in organized group activities outside of school (1 for yes, 0 for no). Six students participated in such activities, which would result in an unweighted value of 50% participating. However, this would not accurately represent the national population of students with disabilities because many more students are classified as having a learning disability or speech impairment than orthopedic or other health impairments, for example. Therefore, in calculating a population estimate, we apply weights in the example that correspond to the proportion of students in the population that are from each disability category (actual SEELS weights account for disability category and several aspects of the districts from which they were chosen). The sample weights for this example appear in column C. Using these weights, the weighted population estimate is 89%. The percentages in all SEELS tables are similarly weighted population estimates, whereas the sample sizes are the actual number of cases on which the weighted estimates are based (similar to the 12 cases in Exhibit A-2).

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Exhibit A-2
EXAMPLE OF WEIGHTED PERCENTAGE CALCULATION

Disability Category	A Number in Sample	B Participated in Group Activities	C Weight for Category	D Weighted Value for Category
Learning disability	1	1	4.3	4.3
Speech/language impairment	1	1	3.0	3.0
Mental retardation	1	1	1.0	1.0
Emotional disturbance	1	0	.8	0
Hearing impairment	1	1	.1	.1
Visual impairment	1	1	.1	.1
Orthopedic impairment	1	0	.1	0
Other health impairment	1	1	.4	.4
Autism	1	0	.1	0
Multiple disabilities	1	0	.1	0
TOTAL	10	6	10	8.9
	Unweighted sample percentage = 60% (Column B total divided by Column A total)		Weighted population estimate = 89% (Column D total divided by Column C total)	

Sample Weighting

The students in LEAs and state schools with parent interview/survey data were weighted to represent the universe of students in LEAs and state schools using the following process:

- For each of the 64 LEA sampling cells, an LEA student sampling weight was computed. This weight is the ratio of the number of students in participating LEAs in that cell divided by the number of students in all LEAs in that cell in the universe of LEAs. The weight represents the number of students in the universe who are represented by each student in the participating LEAs. For example, if participating LEAs in a particular cell served 4,000 students and the universe of LEAs in the cell served 400,000 students, then the LEA student sampling weight would be 100.
- For each of the 64 LEA cells, the number of students in each disability category was estimated by multiplying the number of students with that disability on the rosters of participating LEAs in a cell by the adjusted LEA student sampling weight for that cell. For example, if 350 students with learning disabilities were served by LEAs in a cell, and the LEA student sampling weight for that cell was 100 (that is, each student in the sample of participating LEAs in that cell represented 100 students in the universe), then we would estimate there to be 35,000 students with learning disabilities in that cell in the universe.
- For the state schools, the number of students in each disability category was estimated by multiplying the number of students with that disability on the rosters by the inverse of the proportion of state schools that submitted rosters.
- The initial student sampling weights were adjusted by disability category so that the sum of the weights (that is, the initial student sampling weights multiplied by the number of students with completed interviews) was equal to the number of students in the geographical and wealth cells of each size strata. The adjustments were typically small

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and essentially served as a nonresponse adjustment. However, the adjustments could become substantial when there were relatively few interviewees (as occurred in the small and medium strata for the lowest-incidence disabilities) because in these cases, there might not be any interviewees in some cells, and it was necessary to adjust the weights of other interviewees to compensate. Two constraints were imposed on the adjustments: 1) within each size stratum, the cells weights could not vary from the average weight by more than a factor of 2, and 2) the average weight within each size strata could not be larger than 5 times the overall average weight. These constraints substantially increased the efficiency of the sample at the cost of introducing a small amount of weighting bias (discussed below).

- In a final step, the weights were adjusted so that they summed to the number of students in each disability category, as reported to OSEP by the states for the 1999-2000 school year (OSEP, 2001).

Bias

As mentioned earlier, the imposition of constraints on the adjusted weights increased sampling efficiency at the cost of introducing a small amount of bias. The largest increases in sampling efficiency and the largest biases occurred for the categories of autism and visual impairment; the smallest increase in efficiency and biases occurred for specific learning disabilities. The principal bias for autism was the reduction in the proportion of students from the Northeast (from 22% to 18%), from the West/Southwest (from 34% to 30%) and from small LEAs (from 16% to 13%). The principal bias for visual impairment is in small LEAs (from 12% to 4%), in very wealthy LEAs (from 20% to 17%). For the category of learning disability, all biases introduced by the imposition of constraints on the student weights are negligible. Considering the increase in sampling efficiency for autism (from 23% to 53%) and visual impairment (from 18% to 53%), we consider these biases to be acceptable.

The reason for the reduction in the proportion of students represented in the cells mentioned above is that there were relatively few students with interview/survey data in those cells. For example, in small LEAs, there were only six students with visual impairments with data, requiring that they represent an estimated 1,771 students with visual impairments from small LEAs. The weighting program determined that the average weight required (i.e., 295) violated the constraints, and therefore reduced these weights to a more reasonable value (i.e., 84.4).

Estimating Standard Errors

The SEELS sample is both stratified and clustered, so that calculating standard errors by formula is not straightforward. Standard errors for means and proportions can also be estimated using pseudo-replication, a procedure that is widely used by the U.S. Census Bureau and other federal agencies involved in fielding complex surveys. To that end, we developed a set of weights for each of 50 half-replicate subsamples. Each half-replicate involved randomly selecting half of the total set of LEAs that provided contact information and then weighting that half to represent the entire universe. Randomization was accomplished within each of the 64 sampling cells. The half-replicates were used to estimate the variance of a sample mean by: 1)

calculating the mean of the variable of interest on the full sample and each half-sample using the appropriate weights; 2) calculate the squares of the deviations of the half-sample estimate from the full sample estimate; and 3) adding the squared deviations and divide by (n-1) where n is the number of half-replicates.

Although the procedure of pseudo-replication is less unwieldy than development of formulas for calculating standard errors, it is not easily implemented using the Statistical Analysis System (SAS), the analysis program used for SEELS, and it is computationally expensive. In the past, we have found that it was possible to develop straightforward estimates of standard errors using the effective sample size.

When respondents are independent and identically distributed, the effective sample size for a weighted sample of N respondents can be approximated as

$$Neff = N \times (E^2[W] / (E^2[W] + V[W]$$

where Neff is the effective sample size, $E^2[W]$ is the square of the arithmetic average of the weights and V[W] is the variance of the weights. For a variable X, the standard error of estimate can typically be approximated by sqrt (V[X]/Neff), where V[X] is the weighted variance of X.

SEELS respondents are not independent of each other because they are clustered in LEAs and the intra-cluster correlation is not zero. However, the intra-cluster correlation traditionally has been quite small, so that the formula for the effective sample size shown above has worked well. To be conservative, however, we multiplied the initial estimate by a "safety factor" that assures that we will not underestimate the standard error of estimate.

To determine the adequacy of fit of the variance estimate based on the effective sample size and to estimate the required safety factor, we selected 24 questions with 95 categorical and 2 continuous responses. We calculated standard errors of estimates for each response category and the mean response to each question for each disability group using both pseudo-replication and the formula involving effective sample size. A safety factor of 1.25 resulted in the effective sample size standard error estimate underestimating the pseudo-replicate standard error estimate for 92% of the categorical responses and 89% of the mean responses. Because the pseudo-replicate estimates of standard error are themselves estimates of the true standard error, and are therefore subject to sampling variability, we considered this to be an adequate margin of safety. All standard errors in Wave 1 are 3% or less, except for categories of deaf-blindness and traumatic brain injury, where sample sizes are very small.

Calculating Significance Levels

Readers may want to compare percentages or means for different subgroups to determine, for example, whether the difference in the percentage of students in poverty between students with learning disabilities and those with mental retardation is greater than would be expected to occur by chance. To calculate whether the difference between percentages is statistically significant with 95% confidence (often denoted as $p<.05$), the squared difference between the two percentages of interest is divided by the sum of the two squared standard errors. If this product is larger than 3.84, the difference is statistically significant at the .05 level—i.e., it would occur

by chance fewer than 5 times in 100. Presented as a formula, a difference in percentages is statistically significant at the .05 level if:

$$\frac{(P_1P_2)^2}{SE_1^2 + SE_2^2} > 1.96^2$$

where P_1 and SE_1 are the first percentage and its standard error and P_2 and SE_2 are the second percentage and the standard error. If the product of this calculation is 6.63 to 10.79, the significance level is .01, products of 10.8 or greater are significant at the .001 level.

Measurement Issues

The chapters in this report include information on specific variables included in analyses. However, several general points about SEELS measures that are used repeatedly in analyses should be clear to readers as they consider the findings reported here.

Categorizing students by primary disability. Information about the nature of students' disabilities came from rosters of all students in the SEELS age range receiving special education in the 1999-2000 school year under the auspices of participating LEAs and state-supported special schools. In data tables included in this report, students are assigned to a disability category on the basis of the primary disability designated by the student's school or district. Definitions of disability categories and criteria and methods for assigning students to them vary from state and to state and even between districts within states. Because we have relied on category assignments made by schools and districts, SEELS data should not be interpreted as describing students who truly had a particular disability, but rather as describing students who were categorized as having that disability by their school or district. Hence, descriptive data are nationally generalizable to students in the SEELS age range who were classified as having a particular disability in the 1999-2000 school year.

Demographic characteristics. Findings in this report are provided for students who differ in age, gender, household income, and race/ethnicity. For the majority of students, age, gender, and race/ethnicity were determined from data provided by students' schools or districts for sampled students. For students for whom information was not provided by schools or districts, data for these variables were gathered during the parent interview. Classifying the household income of students' households relied exclusively on information provided during the parent interview/survey.

Comparisons with the general population of students. Many of the analyses reported here do not have precise statistical comparisons with the general population of students. Instead, we usually have drawn comparisons using published data. For many of these comparisons, differences in samples (e.g., ages of students) or measurement (e.g., question wording on surveys) reduce the direct comparability of SEELS and general population data. Where these limitations affect the comparisons, they are pointed out in the text and the implications for the comparisons are noted. Comparisons using data from the National Household Education Survey

(NHES) are more precise because an analysis file was created from the publicly available data to match the age of SEELS students.

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